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AUSTRALIA'S ONLY CB MAGAZINE

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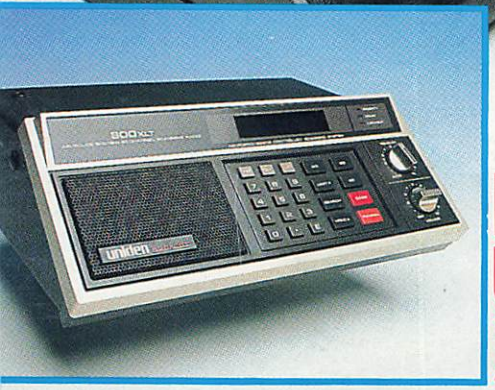

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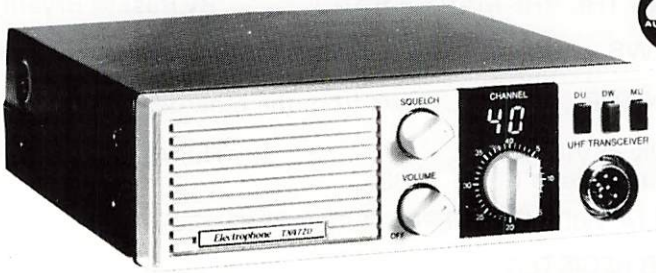

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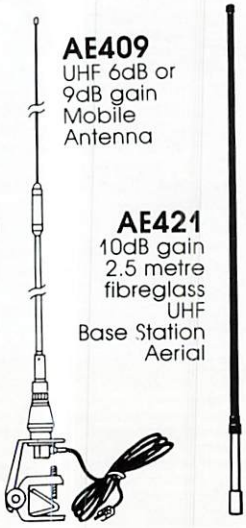

On Channel

If you turn to pages 43 and 44 of this issue, you will find our reader survey form. This survey has been designed to help us select the editorial subjects which are most in demand.

To motivate you into completing the survey and returning the form to us, we will be giving away three free one year subscriptions to each state. The winners of these subscriptions will be drawn from the total entries received from each state. The winners wil be notified by mail following the drawing. The results of the survey will be published in the issue after next, after we have had time to run the answers through our computer.

Get your pen now. One of those subscriptions might just come your way!

★ ★ ★

You will notice that there is no 'New Gear' section this issue. Apart from a nifty little pseudo car alarm control panel sent in by Pat Mulligan of Creative Electronics, new items were conspicuous by their absence since our last issue. I have checked around the importers and distributors and they tell me that there is a bundle of new gear in the pipeline and they will be forwarding details in time for our next issue. Don't miss it.

★ ★ ★

Starting on page 55, you will find a tale about yours truly setting hopelessly bogged, in spite of an expensive winch and four wheel drive. It just goes to show that sometimes the money you spend for a winch could well be better spent on a CB — especially if you go zotting off on your own.

★ ★ ★

DoTaC have decided to kiss and make up. I'm back on their mailing list again and I was pleased to see that they are in fact active against the ratbag element. Providing they keep their promise and keep the information up to us, the magazine will contain details of any busts they make — just to remind you to keep yourself nice.

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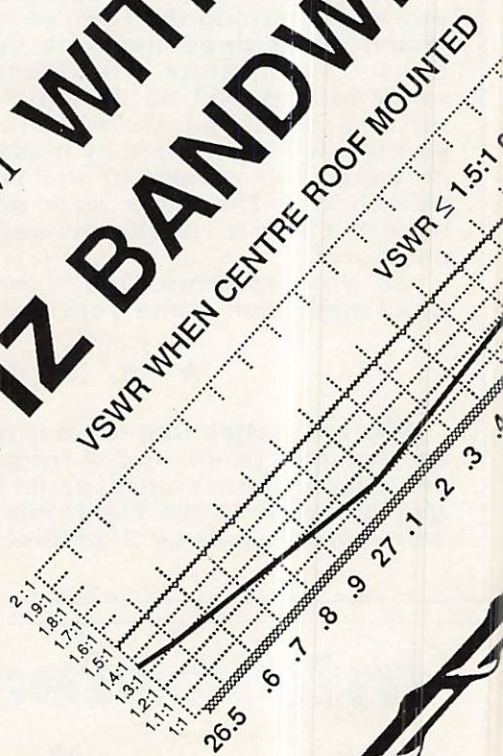

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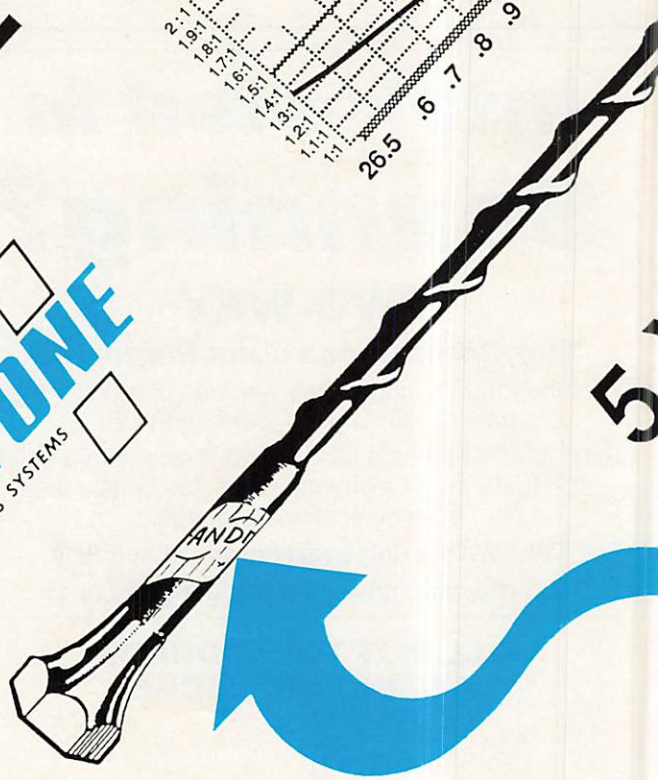

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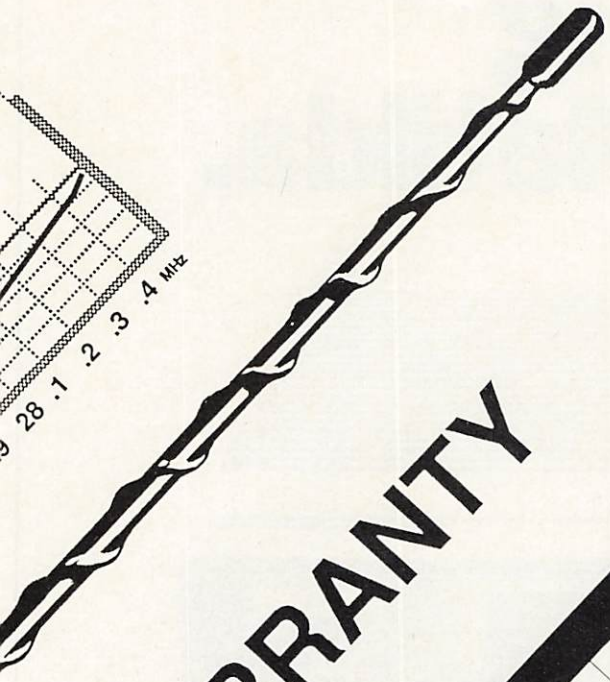

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APOLOGY

CB Action magazine wishes to apologise to Hatadi Pearce-Simpson for the poor quality of the reproduction of an advertisement.

The January/February 1988 issue carried an advertisement for Hatadi on the inside back cover, regrettably spot color and photographs which were supplied by the advertiser were not included. This error was caused by the print/production process of the magazine, for which the publisher accepts full responsibility.

The publisher wishes to apologise not only to Hatadi but also to readers for any confusion that may have been caused.

CORRECTION

In our last issue, a statement was made in "UHF NEWS" that Imark were taking action to re-introduce their venerable Sawtron 990 UHF rig. Imark have contacted us to say that this statement is not correct, and that the Sawtron 999 will continue to be their stock in trade UHF rig. The 999 has proven so popular that Imark in fact cannot keep up with their retailers' requirements.

Our apologies to Imark for this misunderstanding.

WORDMAZE WINNER

The winner of the wordmaze competition in our last issue is: J.A. Keltie of Wonthaggi. The prize was two voice scramblers from GSA Technology, with free installation by Power Band.

The correct answers to the clues were as follows: 1. RF Gain; 2. Clarifier; 3. Mute; 4. Volume; 5. Noise limiter; 6. On Off Switch; 7. SRF meter; 8. Mic gain; 9. Mode selector; 10. TX indicator.

Our thanks to GSA Technology for donating the scramblers, and to Ken Reynolds of Power Band for supplying the installation.

OPERATORS PROSECUTED

An amateur radio operator in Sydney has become the first in Australia to have his licence withdrawn under the Radio communication Act 1983.

As well, a citizens band (CB) radio operator in Brisbane has been fined $350 and had its equipment confiscated after being convicted on charges of harassment and being unlicensed.

A spokesperson for the Federal Department of Communications said these prosecutions were the latest results of an ongoing campaign to clean up the airwaves across Australia.

The spokesperson said CB radio operators and amateur radio operators faced an increasing risk of being prosecuted for the use of obscene language and other anti-social behaviour on air.

"We have to protect the airwaves against this type of abuse in the interests of those operators who are properly licensed and show respect for others," the spokesperson said.

Under the Radio communications Act, it is an offence to use a radio communications transmitter for the purpose of harassing another person. Departmental inspectors conduct their own investigations and act quickly on complaints.

"It only takes a few irresponsible operators to spoil it for others.

"Complaints of anti-social behaviour will be treated in strict confidence and should be made at one of the Department's State or Regional Offices," the spokesperson added.

Penalties for unlicensed operation can attract a fine of up to $10,000 and in addition a court may order forfeiture of offending equipment.

ACBRO IN ACTION

ACBRO is on the move in '88! More correctly known as the Association of Citizens Band Radio Operators Inc., the group is now in their ninth year of bringing CB operators together and representing their cause to the Government.

In addition to the hundred individual members, ACBRO has many affiliated clubs across Australia — including such prominent and active groups as the Victor Radio Club, Pioneer Radio Association, Burnie Citizens Radio Club and UHFAWA.

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LOG BOOK

affiliated with the Wireless Institute of Australia (WIA), the national representative body of amateur radio, and have benefited from their assistance in several areas.

Sponsors of ACBRO include SA companies Jensen Electronics and Electric-Bug.

If you or your club want to get into action with ACBRO, write to: The Secretary, ACBRO Inc, PO Box 170, Walkerville, SA 5081.

DOTAC STRIKES AGAIN!

The Department of Transport & Communications have struck again, to the joy of most Melbourne CBers and the misery of one ex-operator.

The gentleman, who was well-known for his constant harassment of local CBers, was prosecuted by DoTaC under section 23 of the Radio Communications (RadComm) Act. The action followed complaints against the person from licenced operators who had been on the receiving end for just a little too long.

Charges were laid for harassment, and operating unlicenced stations. The total fine was $2000, with the equipment used being forfeited to the Department.

This is not the first time the Radcomm Act has been used to prosecute a CB user, and sources insist that it will most definitely not be the last. A number of stations in Melbourne, Sydney and other major areas are already the subject of files in the Department's Regulatory Branch, and are advised to 'cool it' before prosecution becomes necessary.

Don't say you weren't warned!

SYDNEY'S 8/38 RETURNS

The outer-western Sydney ch.8 repeater is back, and better than before. Having ceased operation from the former Kurmond site, 8/38 is now firing strong from Colo Heights.

The new site is 450m above sea level, and some 250m higher than Kurmond. Tests from this location indicate a greatly extended coverage area, with stronger signal penetration into many areas that were on or beyond the fringe of 8/38's previous site.

As reported in last issue's 'UHF News' problems had been experienced due to users of Sydney's 8/38 (callsign COL-08) accidentally triggering the Wollongong repeater of the same channel.

A change of channels was proposed to alleviate this, however the response of the DoTaC was that COL-08 must instead return to its original licenced site of some years ago.

Although this has been done (at the efforts and expense of the Riverlands Repeater Group), the situation still exists, and in fact the increased coverage provided by COL-08's new site may aggravate the problem.

But has the DoTaC deftly taken Sydney and Wollongong UHFers out of one frying pan, and put them into another?

The site of COL-08 now includes a long stretch of the Putty Road, overlapping coverage of the Muswellbrook 4/34 repeater and preventing Sydney's 8/38 from moving to 4/34 as once hoped.

With no other channels available, it may be necessary to re-allocate 2/32 (recently vacated by the Western Radio Club) to either the Sydney or Wollongong ch.8 repeater services.

Does this mean that the great Sydney repeater channel shuffle may be about to end once and for all?

NZ SCANNER BUFFS REQUIRED

CBA contributor and scanner enthusiast Russell Bryant is compiling a list of New Zealand scanner frequencies, to be presented in a future CB ACTION article.

If you are a fellow scanner hobbyist from NZ, then here is your chance to share your frequencies and notes with others — and pick up some new ones yourself.

Russell is interested in frequencies, notes on different organisations and how they use radio (districts, codes etc) and anything else which would be of use to Kiwi scanner buffs.

Please forward information to: Russell Bryant, PO Box R16, Roselands 2196, NSW, Australia.

CALLING SCANNER HOBBYISTS EVERYWHERE!

CB Action is preparing a supplement for a future issue, devoted entirely to scanners and the hobby of scanning . . . but we need your help to get it together!

This supplement will be more than just another long list of frequencies — there are already enough booklets on the market to provide these.

We will be looking at buying a scanner, accessories and antennas . . . and not just *where* to listen, but *how* to listen and *what* to listen for.

If you've read our previous articles on scanning the NSW railways, the media, police or fire brigades — then this is the sort of information we'll be giving you.

So, please help us, by sending any information you may have (and of course as many frequencies as you can) to: Scanning Supplement, CB Action, GPO Box 628E, Melbourne Vic. 3001.

If you have any special area of interest or knowledge, we'd also love to hear from you.

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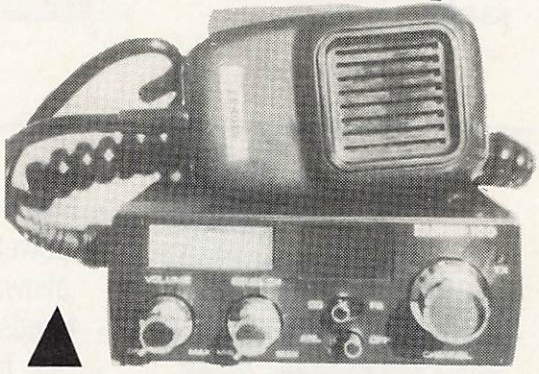

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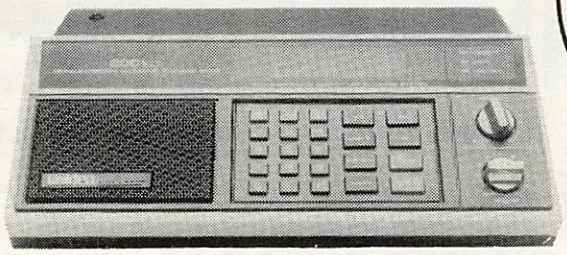

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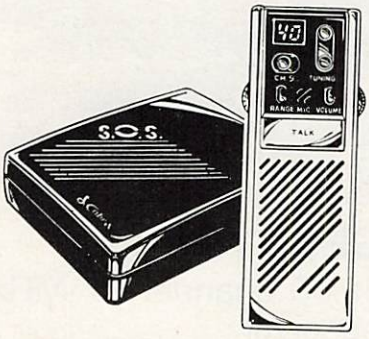

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RIG REVIEW

GE HELP COBRA SOS

EMERGENCY RADIOS

We are often asked by potential CB buyers go give them a recommendation as to what type of rig they should buy.

The first question we ask is: "What will you be using the rig for?" If the answer to that question indicates that the potential buyer simply wants some sort of device to help get him/her out of trouble on the highway, and they don't particularly want to listen to traffic reports and all the other guff that comes over channel eight, then we tend to recommend a radio similar to the two under test. They are reasonably priced, and do the job for which they are designed without the need to have a permanent antenna system advertising the fact that there is a CB onboard, and without having to find a place to mount a regular mobile rig. Small and all as CB radios are now, in today's econo-boxes, space is at a premium.

These "emergency" radios also come equipped with a power cord and cigarette lighter plug, which eliminates the problem of running power from the battery, or picking up a suitable wire from the existing loom.

Another potential buyer of these emergency rigs is the business person who perhaps flies from city to city, and then hires a car at each destination to get from customer to customer. It's noticeable that this market has been largely overlooked by the distributors and retailers, as there never seems to be any advertising aimed in this direction . . .

COBRA 39 PLUS

The Dynascan Corporation which produces the Cobra range has always had a reputation for offering handsome, workable gear, and on opening the carry case, this tradition seems to be continuing.

The 39 Plus has a light grey casing, with a black insert at the top where the controls are housed, and immediately below this, a red PTT bar. The microphone is built in, just above the PTT bar. Controls are kept to a minimum, as they should be with a radio aimed at operators who, if they have their way, will seldom have to use their acquisition.

The controls, two of which are touch coded, consist of a rotary control marked "Range" — which would be better described as a squelch control, situated on the left side of the radio, and on the right side is the rotary control for "On-/Off/Volume". The inbuilt microphone is located on the front panel between the indicator windows for these two controls.

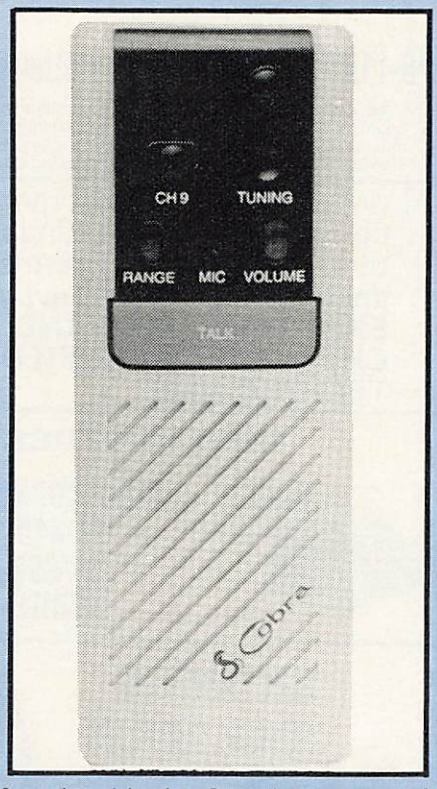
The touch coded buttons on the front panel are marked "Ch 9", and "Tuning". The tuning control is an electronic channel selector bar, with the top end having a raised bump signifying "up", and the other end with a small depression, which signifies "down". Whenever the radio is initially powered up, channel 9 is automatically selected. If you are on any other channel and want to get to channel 9, simply use the channel 9 selector, which also has a raised bump to identify it.

The channel indicator is a green LED above the channel 9 selector button. All the regular 40 channels are available, so although quite small, the 39 Plus is in fact a "regular" CB rig in this regards.

It also puts out full legal power.

The power connector socket, and the antenna socket are both located on the bottom of the unit, and there is no provision for alternate battery power with dry cells.

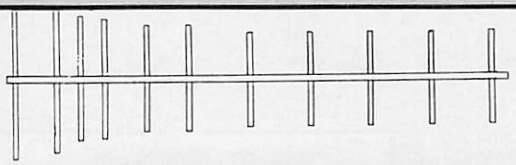
The cigarette lighter adaptor which supplies power to the unit is



fused, with the fuse incorporated into the plug which pushes into the lighter socket.

As is usual with emergency radios, the antenna is a telescopic, magnetic base affair, but the 39 Plus has included a neat detachable spool which fits around the magnetic base. This spool holds the antenna lead, which eliminates the tendency of unwary operators to put sharp kinks in the co-ax when folding it for storage. By the same token, having the co-ax neatly coiled around the spool during operation can introduce a balun effect, which will affect the impedance of the pre-tuned antenna lead. You should always ensure that the co-ax is fully run out, which applies not only to this particular set up. Never coil your antenna lead, whether it be mobile or base station, or marine. If you must have excess cable, it's better to run large loops than small coils.

Another little piece of "one-upman-ship included with the 39 Plus is an orange plastic flag emblazoned with the letters "SOS", which slips over the antenna to sig-



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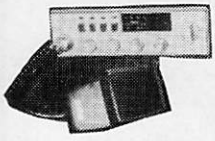

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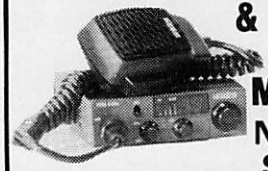

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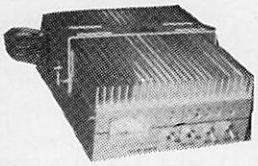

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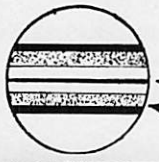

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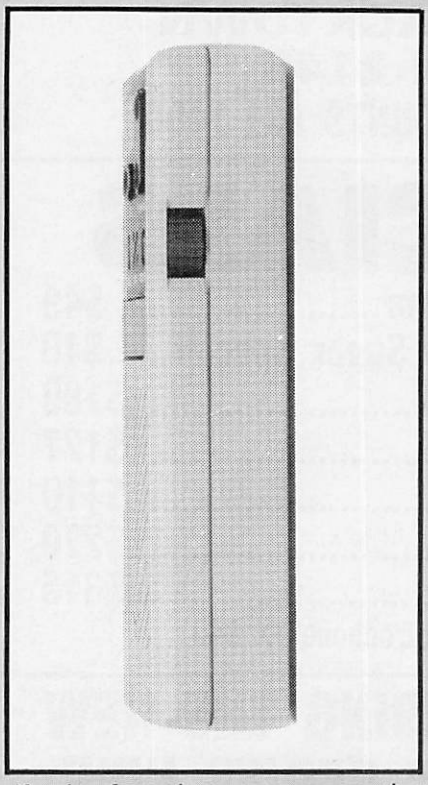


nify the fact that you are up that well known tributary without the means of propulsion. We didn't measure what, if any, effect the rigging of this flag had on the SWR of the antenna, but it sure as shooting won't improve it. Still, the thought's there, and the user's manual does warn you not to drive with the flag rigged.

Should you want to use the rig as a quasi mobile, Cobra have included a device for hanging the unit from a door or window handle, or similar.

The user's manual which comes with the rig is adequate, although slanted towards the American consumer. The instructions for the actual operation of the unit is precise, however the emergency procedures described could do with a revision along Australian lines.

We particularly liked the comments by the US police regarding the combination of CB and radar, which effectively states that the benefits of both far outweigh the disadvantages observed by highway patrol law enforcement officers. They state that speed trap warnings to other drivers are passed on by CB and radar users and have a residual effect long after the trap has been moved to another location, effectively slowing the traffic for a longer period.

Obviously the parliamentary poobahs in Victoria and Tasmania don't share their enthusiasm, 'cos it costs you $2000 if you are nabbed with a radar unit in your vehicle — even if it's not hooked up. Far be it for us to suggest that it is just another revenue raiser perpetrated on the long suffering motorist . . . But, off the soap box and back to the 39 Plus.

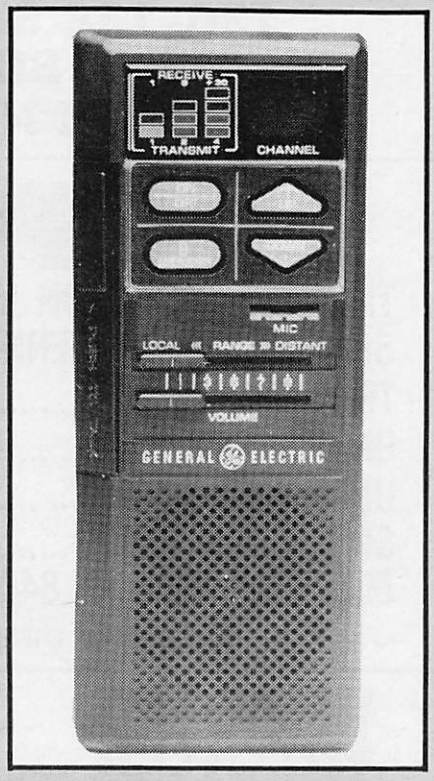
On-air performance, judged purely with the Mark 1 earhole, was quite adequate, bearing in mind the size limitations placed on the speaker by virtue of the outer case dimensions. Our tech, Ken Reynolds will give more information in this regard — see the tech report.

Our thanks to Hatadi Electronics for supplying the rig for test.

GE HELP 3-5909

This unit is slightly smaller than the Cobra 39 Plus, but there's not a lot in it. The carry case is certainly smaller to a more significant degree, which may influence some buyers — depending on the size of their glove box. Like the Cobra unit it also offers full legal power, and all 40 channels.

The GE unit is a little more colorful than the Cobra, with a black case, and red and green control buttons. It appears to have more controls than the Cobra at first glance, but you will find that it's merely the placement of the controls which makes the difference. Granted the GE does have a bar type LED S/RF meter — there is no meter on the Cobra — and a separate on/off switch, but the range (squelch), and volume controls have been located on the front panel, not the side as is the case with the Cobra. The PTT switch however has been located on the left side panel, and in use makes us feel that the designer was in fact a



south paw. It's not difficult to use right handed, just a bit more awkward as you have to have hands large enough to extend right around the unit.

Electronic channel changing is also featured on this unit, but there is no touch identification feature as with the first unit reviewed. As could be expected with an emergency radio, there is an instant channel 9 selection button, but this channel is automatically selected on initial power up. The channel readout is a green LED.

Antenna and power sockets are located on the bottom panel, with the same cigarette lighter power source as the other unit, complete with the fuse in the lighter socket connector. The antenna is similar to the Cobra, with a magnetic base and telescoping whip, but the tricky little storage spool isn't included with the GE kit.

Neither is the SOS flag . . .

The operator's manual is brief, and to the point, but once again is slanted towards our cousins across the Pacific. This doesn't matter as far as the actual operat-

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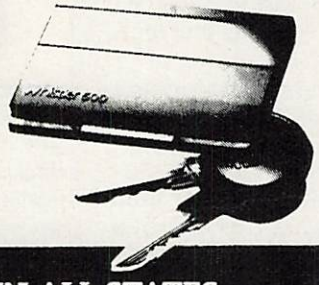

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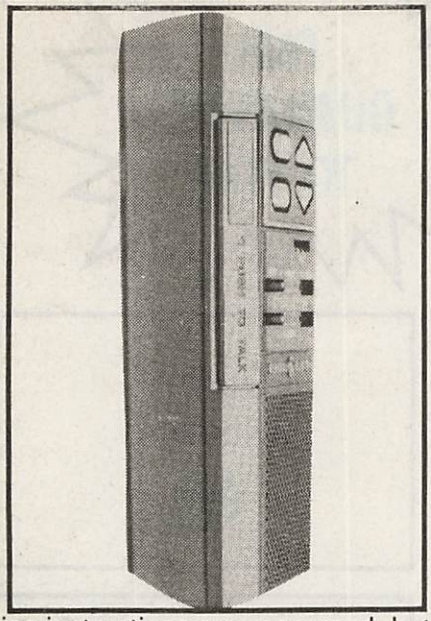
RIG REVIEW



ing instructions are concerned, but the facts about channel 9 could be misleading to a person not familiar with the position in Australia. In our opinion, the distributors of all CBs should make sure that there is a leaflet inserted in each manual, setting out the local situation. A minor point perhaps, but the likelihood of these emergency radios being operated by an inexperienced person — who may also be under stress if there is an emergency — is very high.

Using the GE Help on air, the recovered audio is quite good, and the transmitted audio was reported as more than acceptable. The GE also employs a built in microphone, similar to the Cobra unit, and in both instances we found it better to use the rig further away from the mouth than you would use a regular handheld mic.

As with the previous rig tested, the overall results were about what we expected — taking into account the limitations imposed by the size of the units.

Internally, the GE is a little more advanced technologically than its counterpart featuring surface mounted components, but we'll let Ken Reynolds delve into that in his technical report.

Our thanks to GE and Power Band for supplying the rig for test.

TECHNICAL COMMENTS

The 'emergency radio' concept has been around for quite sometime with a number of market contenders offering similar features.

The names on all these comparably styled radios imply that they would probably save the day in a real emergency, but that would depend entirely on the degree urgency and especially whether you just happen to have a 'flat' car battery or indeed any type of suitable power supply available at all.

On 13.8 volts the SOS produced 4.2 watts RF output while the HELP turned in a similar 4 watts. Reducing the battery voltage to 12 volts produced a quite noticeable drop in output power in both units, which fell to 2.8 watts and 2.7 watts respectively. Since depleted lead-acid accumulators (car batteries) often drop to 9 or 10 volts — usually more than enough energy loss to leave you stranded — we tried the little rigs on 9.5 volts. The RF power output was reduced to about 1 watt in both cases — not a lot of power you will agree, but, sufficient to carry a considerable distance. At this low power level the percentage modulation was unimpaired and with moderate voice level the sets peaked up to 100 per cent.

At the proper operating voltage the transmitted audio of both radios was clean and crisp and quite comparable with the quality of rigs having separate fist microphones.

The receiver performance of both units is very good with excellent sensitivity and an adequate level of noise suppression, although there is no switchable noise limiter on either set.

Without commenting further on the intended use of these radios I am somewhat critical that both units have a 'range control' instead of the usual squelch — the name range control has multiple connotations: power RF gain etc. The range control is in fact the squelch, and this could be a real trap for a first time operator with no prior radio experience, although the handbook for each rig does point out that adjustments to this control doesn't affect the power output.

If the rigs are really intended for use in life threatening situations it might be better to leave out the 'squelch/range' adjustment altogether. Even with moderate levels of squelch on either unit, it required a quite strong signal to un-mute the audio circuits.

Frequency accuracy of the test units left a bit to be desired, with the SOS about 300Hz low in frequency and the HELP almost a mirror image at 300Hz high in frequency. Sounds bad but this level of frequency error on AM sets is acceptable and would go unnoticed by most operators, except under the most demanding conditions. On the SOS I noticed some change in the brilliance of the channel display as the channels were stepped.

I preferred the slide controls on the HELP radio because you can see instantly the position fo each, however, this plus is offset by the apparent 'left-handed' PTT switch which is a bit awkward to operate if you are right handed.

The construction of both little rigs is quite good and but neither set is particularly accessible for servicing or repairs. The GE radio has made some use of Surface Mounted Devices (SMDs) but, like the Cobra it is fairly conventional in most respects. I dislike the RCA connectors used for antenna connectors on both rigs, however, it is probably a space saving measure as much as an economic consideration. The antennas supplied performed well providing a suitable ground-plane is available.

I used a variety of metal surfaces as ground planes with quite good results on all but the smallest masses. Even a piece of aluminium "angle" about 2 metres long worked quite well as a ground plane, and produced a VSWR of less than 2:1.

All things considered the SOS and HELP radios fill a neat little niche in the market and offer good performance combined with convenience and compactness. They are complete except for a self contained power — an auto cigarette lighter socket is the required source. If there is a weak point in either case I would expect it to be the antenna cable or the antenna itself. Neither impress me as being robust enough for service over long periods.

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RIG REVIEW

UNIDEN BEAR CAT XLT 800 SCANNER

Writing for a magazine like CB Action does have its advantages. You have the opportunity to play with some great gear.

I arranged with Santronic Agencies, importers of the Uniden-Bearcat scanners, to take delivery of their 800 XLT just after the Christmas break. So it was with eager anticipation that I waited for the long weekend to pass.

Straight out of the box, the 800 XLT looks pretty well standard, albeit large, scanner. This latest Bearcat is one of the new breed of scanners that receives above the "normal" bands, extending into the 800 MHz portion of the spectrum. With more and more radio licences being granted for this band, and the new cellular mobile telephones, the Bearcat is sure to be popular.

Frequency coverage of the 800 XLT, although not continuous, does take in a large slice of the action. Capable of receiving from 29 to 54 MHz, 118 to 136 MHz (AM), 136 to 174 MHz, 406 to 512 MHz and finally, 806 to 912 MHz, there is not much you won't be able to listen to.

Now for the mandatory tour of the controls.

The angled front panel is broken up into thirds. The first 'third' is the speaker, and it's a big beast, rated at 2 watts. it should provide adequate volume for even the noisiest environment.

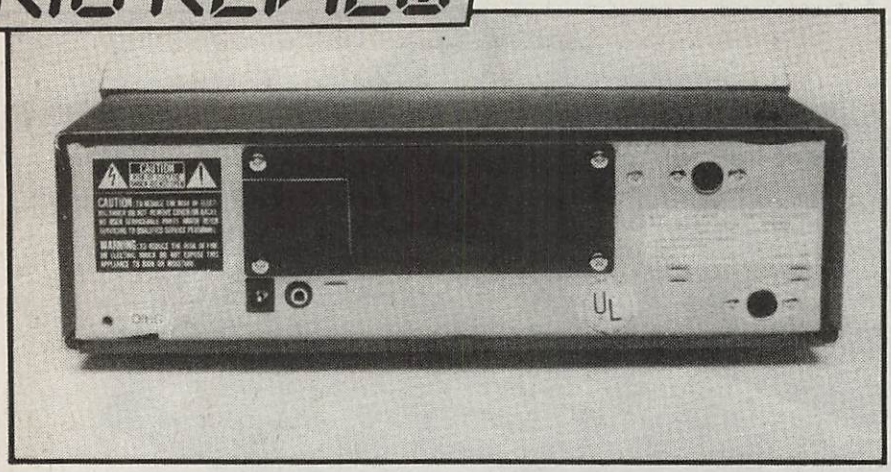
The second part is the keyboard. Uniden have decided on push bottons rather than the touch sensitive pads, common to more and more scanners these days.

The keyboard performs two separate functions. The first is "PROGRAM". The numeric keys 0 to 9 and the decimal point are used to program the desired frequency into the scanner. The "enter" key stores the frequency in any one of the scanners 40 memory channels. The second function is "OPERATION", and includes: MANUAL; SCAN; LOCKOUT; DELAY; PRIORITY; SEARCH; SEARCH LIMITS, and HOLD.

Two keys that are a little out of the ordinary are marked, "20 & 40" and "WX". The 20 & 40 key simply selects the bank of channels you wish to scan — 1 to 20, and 21 to 40 or 1 to 40. The WX key is a hang over from the US of A.

Throughout continental America the US Weather Bureau has established a network of VHF high band transmitters. These transmitters broadcast weather information on a continuous basis, and are relied upon for hurricane warnings, and other important weather information. Pressing the WX key automatically starts the 800 XLT searching the seven Weather Bureau channels for activity. Unless one of your favorite frequencies

RIG REVIEW



happens to coincide with any of the WX channels (around 162 MHz) then this feature can largely be ignored.

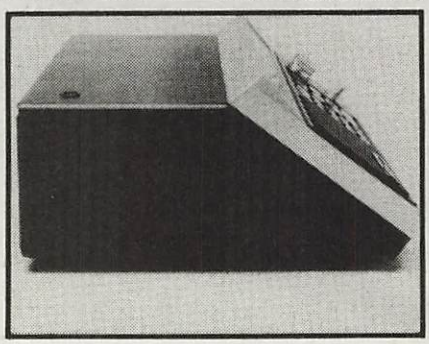
The final and smallest section is the volume and squelch controls. The volume control is standard, however the squelch has the added selection of "AUTO". Turning the rotary control counter clockwise until a click is heard, sets the automatic squelch. The 800 XLT will adjust the level of muting to suit the incoming signal. I could not find any mention of this facility in the handbook.

On a slightly steeper angle above the keyboard and controls is the fluorescent display. The very bright 9 digit display indicates the channel and frequency being monitored. To the right of the channel readout are 3 LEDs, that show the program status. If PRIORITY, DELAY, or LOCKOUT has been selected for a particular channel, the respective red, green or yellow LED will be illuminated.

The rear panel of the 800 XLT also has some surprises — there is a total of three antenna connections. The first is the standard onboard telescopic whip. Insert the threaded end into the hole located on the top of the scanner and you are in business.

Included with the Bearcat is a smaller right angled antenna about 7.5 cms long.

Used for the 800 MHz band, the mini whip plugs into a Motorola type jack on the rear apron. Below this is another Motorola socket,



used for external base or mobile antenna.

One personal note.

I hope that we will soon see the demise of the Motorola socket in favour of the BNC connector on future scanners. The original concept behind the Motorola socket was to unplug the AM antenna from your car radio and it then doubled as the scanner whip. With the many and varied specialist scanner antennas on the market, this is now largely an abandoned practise. I will now get off the soapbox.

To enable the 800 XLT to retain its memory during power loss, back up is provided by two AA penlight batteries. They are installed in the capsule on the rear panel. The 12 volt DC socket and extension speaker jack are the only other connectors on the back of the set.

The 800 XLT has no AC capability, a 12 volt DC converter, rated at 1 amp is needed to fire it up. The converter was not in the box and I am not sure if one comes with the scanner.

Programming the Bearcat 800 XLT is simplicity itself. No complicated moves here. Manual to the desired channel, dial up the frequency you want and enter it. It is that easy. Repeat the process until all 40 channels are filled. The search function is equally as simple. Enter the lower frequency, press LIMIT. Enter the upper frequency and again press LIMIT. Hit the SEARCH key and away it goes. If an interesting transmission is heard press the HOLD key and the scanner locks onto that frequency. To permanently store the HOLD frequency press ENTER and it's stored in a memory channel.

So how does it perform? Rather well, on the high band VHF and UHF channels anyway.

Unfortunately, the Australian low band VHF has not been included in the 800 XLTs coverage so I was unable to test it for long distance reception. Aircraft contacts several hundred kilometres out were possible, with clear, clean audio. With Bearcats unique "Track Tuning" an accurate frequency readout is guaranteed.

For the specification hounds, sensitivity is quoted at between 0.3uV and 0.8uV, depending on the band. it weighs a respectable 5lbs and is approximately 10½" wide, 3½" high and 8" deep. The 18 page handbook is well set out, easy to follow with simple clear text and diagrams. It explains nearly all the radios functions and options.

The Bearcat BC800 XLT is aimed more at the city user rather than country. The inclusion of 800 MHz is a sign of things to come, as the lower spectrum becomes crowded. For those hobbyists who wish to monitor higher up, the 800 XLT is one scanner to be considered.

Thanks to Tony Pischedda, from Santronic Agencies' Sydney office for the loan of the rig for this review.

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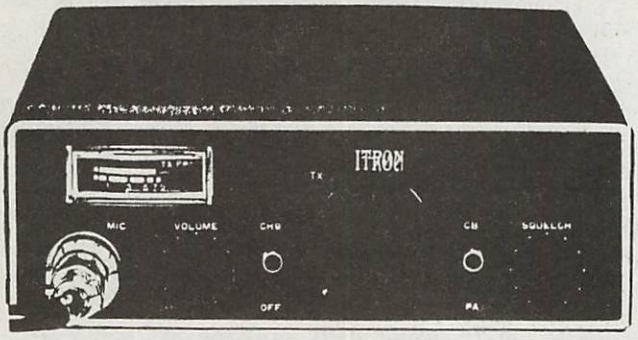

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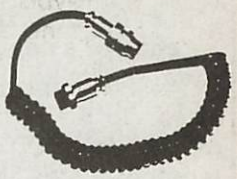

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OUT WEST

By DON STEWART

First item for this year is a letter from WCE469 Viv, secretary of the Katanning CB Club. Sorry Viv, you missed the deadline for the last issue by two weeks, but thanks for the story.

It seems the Katanning CB Club, last year, decided to get more involved in community projects and ran a raffle in aid of the Royal Flying Doctor Service.

Katanning businesses kicked in with the prizes and 2000 tickets were sold over a period of three months. As a result of this effort the RFDS is $2300 better off.

That's the sort of story I like to hear — top marks Katanning CB Club — obviously Katanning is not known as "The Heart of the Great South" for nothing.

Just to show that you don't need exotic prizes like "A Month in Tokyo" to achieve a good result, the main five prizes in the raffle were a chainsaw, a wheel barrow, a meat pack, a travel bag and a uteload of firewood, together with several smaller consolation prizes.

Viv sent a photocopy of a picture and article printed in The Great Southern Herald, which would have filled this page nicely and saved me a bit of writing but, as it would have been a copy of a copy of a copy by the time it got to print, it just was not clear enough. All news hounds please take note — the original piece from the newspaper (uncreased if possible) is much better.

Anyway, keep up the good work, Katanning, and please let me know how you get on with your other projects.

★ ★ ★

When you think about it, the RFDS is an organisation worthy of support by any radio club. After all, they rely on radio, which is our hobby, and have used it since before the days when "Pedal a bit faster" meant just that.

Anyone who thinks that the RFDS is only for the outback is behind the times, as I found out a few years ago when my wife was down with pneumonia. When her condition became critical it was the RFDS which moved her, in double-quick time, from Bunbury hospital to the Chest Ward of Charles Gardiner Hospital in Perth. I'm sure the move saved her life, because they told me she was operating on only a quarter of one lung when she arrived there.

Only my wife could get pneumonia during a blistering February heat wave, but it opened my eyes to what the RFDS is all about.

They are on air (and often in the air) from The Alice to the coast in any direction 24 hours a day for any caller, and you could fill a library with stories about the lives they have saved.

If you have been looking for a worthy cause to support, your search is over.

★ ★ ★

There are two more letters which just missed my deadline last time. The first was a note from WAZ707 Colin, who said that our previous bit of stirring about waffling on the call channel seems to have had some effect, and that it is now possible to make a call in Perth — sometimes.

Good one, Colin. As you say "Let's hope it stays that way". Or even improves further?

By the way folks, the deadline at my desk for this issue was January 8th, and for the next issue it is March 4th — you've got to be quick.

★ ★ ★

The last letter for comment was from a very confused 13-year-old from Reservoir in Victoria.

Brendon says he has got the hang of AM/SSB, but what's all this VHF, UHF, CB, FM, duplex, repeater, simplex stuff?

Wow, Brendon! Where do I start? With VHF I suppose — forget it — as a CBer it is not available to you; your choice is only HF (27 MHz) or UHF (477 MHz).

The radio spectrum is broken, for convenience, into various frequency bands — HF (High Frequency) covers 3 to 30 MegaHertz (MHz), then VFH (Very HF) to 300 MHz, followed by UHF (Ultra HF) up to 3000 MHz (3 GigaHertz). There are others above and below these, but I won't dig any deeper just now.

FM (Frequency Modulation) and AM (Amplitude Modulation) are simply different methods of getting a voice into a radio wave. FM is very clear and is the method used for UHF CB. AM, as you know, is used on 27 MHz, but there is some talk of changing to FM there as well.

"Simplex" is a term used to describe the single-channel system you are used to on 27 MHz — stations in conversation transmit and receive on the same frequency, or channel.

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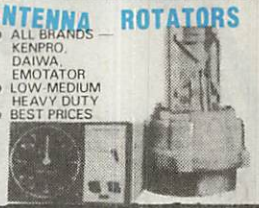

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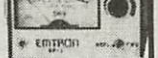

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OUT WEST

By DON STEWART

"Duplex" is a dual-frequency operation, as used with a repeater. I guess the best way to explain this is to reprint a bit from this page of two years ago —

"Because UHF radio waves travel more line-of-sight than those on lower frequencies, the range from one antenna to another on flat ground through houses and so on is fairly limited, so repeaters are used to extend the range. As the name suggests, they repeat your signal from a higher antenna than yours, and the higher a repeater is mounted the better the distance covered.

Repeaters receive on a frequency 30 channels above the one on which they transmit so that interaction between the signals simultaneously received and transmitted is reduced.

Because of this, you have to be able to transmit on, say, channel 33 and switch down to channel 3 to get a reply. All UHF sets sold now have repeater, or duplex facility built in, so this switching is done automatically — you switch to "Duplex", select the channel you want and, when you push the transmit button, your set will switch to the higher channel, and drop back again to the lower one when you stop transmitting.

Only one person can talk on a repeater at any one time, so it is like a giant party-line telephone with hundreds of subscribers."

I hope this clears things up a bit for you and you will be able to follow a bit more of what you read in CB Action. By the way, the hand-held you mentioned is OK — in fact I have not seen a bad UHF hand-held yet; they are all good gear.

★ ★ ★

I have been informed, by several people, of a recent altercation on channel 4 repeater which should never have happened.

With a strong inversion right down the coast, a small group was in conversation through channel 4 at Lancelin and suddenly found themselves being told to get off the Boyup Brook repeater (also channel 4).

It turned out that the inversion was causing them to access both repeaters at once without realising it, but it was useless trying to explain this to the breaker, who told them in no uncertain terms that: Boyup Brook repeater is owned by a group which put it up for its own use and it was deliberately sited to keep others out; only people using their group callsigns were allowed to use it; any outsider calling through the repeater would be ignored, even for an emergency.

He was about to switch the repeater off for the night because he was fed up with listening to them waffle.

This latter action suited the original group down to the ground, because they could then get on with their chat and would not care if Boyup Brook went off air permanently.

I cannot believe that all of the Boyup Brook group are so insular — I know some of them use channel 2 when travelling through the Bunbury area, and they must expect a bit of tit-for-tat at least — but it seems that somebody down there needs to be reminded of the facts of UHF CB life, which centre on the premise that, if you opt for the cheap communications offered by UHF CB, you have to live by the rules that go with it.

One basic rule is that a UHF CB Repeater might be privately owned but, once it is "on air", it becomes a public facility which must provide, essentially, a continuous service and cannot be shut down without good reason. Being fed up with the waffle doesn't sound like a good reason to me.

As for not answering calls, that is generally up to the individual, but an emergency call should be answered by ANY station hearing it — it's in The Book.

As I said, the above was reported to me; I didn't hear any of it but, reading between the lines, I can imagine that the chastised stations gave as good as they got — after all, they only accessed the repeater by accident and would not have cared what happened to it — which backs up something I have always said "What you ignore will leave you in peace sooner than what you attack".

★ ★ ★

That's it — deadline again! Too late to go looking for bits to pad out the page a little. Cheers for now.

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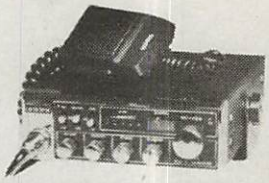

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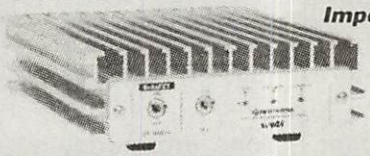

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Queensland Scene

By ROD FEWSTER

My faith in human nature has been partially-restored by the literally dozens of calls I received since the last CB ACTION hit the streets, not only from Brisbane CBers but from as far away as Tasmania and Western Australia, expressing disgust at the filthy on-air threats made towards my daughter.

Calls from DOC saying that they were going to arrest the dirty bastard and flog him to death in the City Mall were conspicuous by their absence.

★ ★ ★

Interesting to note that the porno sessions vanished from 26.885 MHz the day the last issue appeared on the news stands.

Who said nobody reads Queensland Scene?

★ ★ ★

Over the last few months the hardest part about making contact with foreign stations on 27 MHz has been picking up the microphone.

Unfortunately the resurgence of overseas "skip" has brought about the rapid deterioration of operating procedures, and on-air courtesy has taken a back seat to the purusit of QSL cards.

CBers who survived the late seventies and early eighties will get a feeling of deja-vu on hearing the persistent "breakerbreaker-breakerbreakerbreaker" during every pause in an internatiional conversation, or on hearing the ridiculous "The California station . . . ya got a copy on the Brisbane station?"

I don't know whether these loonies are the same ones whose CB slang drove normal radio operators to distraction at the height of the last cycle or if they're part of a brand new crop, but whichever, I wish they'd quit all the Smokey and The Bandit crap and talk plain English.

Take signal reports, for instance. Even old hams drop the occasional slangie like "you're making a fine trip" in between the five-and-nines, but the continuous use by CBers of gems like "yer blowin smoke over here", "yer wall-to wall and tree-top tall", "yer rattlin the windows in me shack", and "ya wanna buy me a new needle, ya just bent mine" is migraine material.

How about the famous Aussie CBer's farewell . . . "We'll give ya all the golden numbers from one to a hundred and wish ya all the best from our house to your house and take care 'cos we care"? Would you say that to someone in the street? If not, why say it on CB radio?

During Christmas week one Brisbane QSL-chaser came out with "We'll give ya beers and cheers and watch out for queers and Santa's reindeers and dodge aboriginal spears and keep the wax outta yer ears until we catch ya on the air again" so many times that I felt like tracking him down and stapling his lips together as a service to Australian CBers in particular, and the entire human race in general. After hearing his closing patter one of his Stateside contacts came back with "Hey, fella, you're kinda weird. Ever thought about seeing an analyst?" but it was like pouring water on a duck's back. Didn't even slow him down. Bet the Yank doesn't send him a QSL card, though.

★ ★ ★

Ever noticed how all the real pains-in-the-bum refer to themselves as "we"?

Are they speaking on behalf of their entire families, or are they using the royal "we"?

Kings of the airwaves, maybe?

★ ★ ★

As if all the previously-mentioned on-air drivel wasn't enough to make me vomit, the other day I heard some wanker call a first-time American contact "My Very Good Buddy".

AAAARRRGGHHH !

★ ★ ★

One of Brisbane's newborn "big gun" stations had better learn real quick to keep his silly bloody gob shut when someone's having an intelligent conversation with a foreign station. I haven't heard the loudmouth myself, but it seems like he's under the mistaken impression that every foreigner on the band is just waiting with bated breath for a chance to swap QSL cards with him, and his on-air rudeness and persistent interruptions have put him right at the front of the queue for a knuckle sandwich from one of the old-time Bad Buddies.

★ ★ ★

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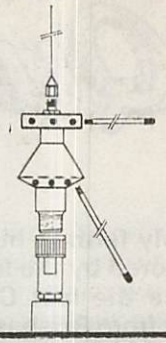

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Queensland Scene

By ROD FEWSTER

one from your belt, hook it up to a mobile antenna in your car, or connect a base antenna at home.

Two things most hand-held users bitch about at one time or another . . . the lack of a sturdy carrying case for most models, and the fact that the batteries don't last long between charges. Unless you charge the batteries every day, forget about using the high-power mode.

Brisbane manufacturer MarkTronics has come up with solutions to both these drawbacks.

Their Universal Carry Pouch, which should be available from CB dealers by the time you read this, is a military-look case which will suit standard-sized hand-helds like the Icom IC-40, Uniden UH-005, Emtron Ace, Electrophone TX-474, etc, as well as a wide range of amateur and commercial transceivers. A model to suit the smaller Electrophone TX-475 will be available in the near future.

The material used is Cordura, an almost-indestructible fabric. The UCPs are extremely well-made . . . double stitched with bound seams and edges and Velcro fastenings . . . and are supplied with a shoulder strap. At the manufacturer's request I tried to tear one apart, and failed miserably. I'm only a feeble old five-foot dwarf, but I doubt if even Arnold Schwartzenegger could wreck one without using a chainsaw. On a recent hunting trip the case survived (and probably saved the transceiver's life as well) a rather spectacular arse-over-tit downhill trip which left me minus yards of skin and with bruises everywhere except the soles of my feet.

Retail price will be around $75. Sounds expensive, but bear in mind that it will probably still be in good condition when your hand-held has rotted away. If you go wandering around in the bush (or live there) you'll know what I mean. I've managed to destroy two plastic Icom cases in three years.

The UCPs are designed to be used with another MarkTronics product, the UBP-12 (Universal Battery Pack — 12 volt). This battery pack is a bit larger than the standard battery packs supplied as original equipment, and unless you fit the UBP-12 you have to use a piece of foam packing to fill the extra space in the bottom of the case.

The experimental UBP-12 I've been using is a bit fiddly to install, but the prototypes of the end product look good and simply snap into place just like original battery packs. The 1200 mA/H UBP-12 provides a fully-regulated output of 1.5 amps, and each pack has its own inbuilt voltage regulator. What this means is that, unlike most rechargeable battery packs, you can plus the UBP-12 directly into a 12VDC source like a power supply or the cigarette lighter socket in your car and still use the transceiver while it's "on charge". (Some hand-helds will kick the bucket the instant you start the engine if you hook them up to your car battery without a separate DC/DC regulator.)

Life between charges is exceptionally good. During the aforementioned hunting trip I ran my Icom (fitted with the experimental UBP-12) on high power for three days and nights, giving it a fair amount of caning, and it still had heaps of charge left when I returned home. On previous trips I'd charged the original Icom BP-5 battery pack every night, but even so it managed to run out of puff a couple of times.

Fitting a UCP/UBP-12 combination to your hand-held adds a bit of bulk and a fair amount of weight to the overall package. I reckon if you had one hanging from your belt your pants would be down around your ankles most of the time. Obviously the manufacturers took this into consideration, hence the hefty shoulder strap.

Retail price of the UBP-12 will be around $175. Once again this sounds expensive, but it's not when you consider that original high-powered battery packs cost well over a hundred bucks these days and you'd be up for the additional cost of a voltage regulator as well. You only get what you pay for, and the UBP-12 will out-perform any other rechargeable pack that I know of.

If you want a "poofter radio" you can carry in your shirt pocket . . . give the UCP/UBP-12 combo a big miss.

If you want a quality case which will protect your hand-held transceiver from anything short of a nuclear strike and a high-powered battery pack which doesn't have to be recharged every five minutes . . . go for it.

CB ACTION/UNIDEN WORDMAZE COMPETITION

WIN A PRO-310E AM HANDHELD CB

To enter, simply find the ten names of advertisers or their products hidden in the wordmaze.

These words may run horizontally, vertically, diagonally, backwards or forwards.

To give you a guide, the word ACTION is printed in bold type — this word is not considered to be part of the solution.

Post your entry to:

CB ACTION/UNIDEN WORDMAZE
GPO BOX 628E
MELBOURNE 3001

to reach us no later than 20 March 1988.

The winner will be selected from all the correct entries received up to that date. The draw will be conducted in the offices of CB ACTION, and the result published in the next issue.

The winner will be notified by mail prior to the on-sale date of that issue.

I believe that the hidden words are:

1.....(5)
2.....(4)
3.....(6)
4.....(6)
5.....(3)
6.....(6)
7.....(6)
8.....(7)
9.....(8)
10.....(12)

X	E	N	O	H	P	O	R	T	C	E	L	E
Y	Z	B	C	E	**A**	G	J	N	O	U	T	S
V	A	R	B	O	**C**	H	K	L	P	Q	R	W
Z	X	B	D	F	**T**	I	M	R	P	S	W	H
Q	P	M	L	I	**I**	E	E	H	D	P	A	I
R	O	N	K	J	**O**	G	G	G	F	I	C	S
U	N	I	D	E	**N**	S	T	A	B	L	B	T
D	C	A	B	A	Z	Y	X	W	V	I	U	E
F	N	O	R	T	M	E	G	K	I	H	M	R
P	K	H	X	E	C	Z	H	J	L	P	N	O
O	N	J	X	E	L	N	E	J	U	V	Q	R
L	M	I	F	D	B	A	X	Y	T	W	S	P

I would like to enter the CB ACTION/UNIDEN Wordmaze competition.

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Heavy duty, suitable for off road or hard environment use. Pretuned for SWR 1.5 – 1 from 26.965 to 27.405 MHz

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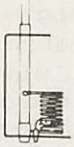
$595 2 YEAR WARRANTY

The perfect Christmas gift. Modern styling and the latest generation of circuitry. Squelch, PA, mike gain, RF gain, clarifier, SWR/RF meter and quick channel 9 switch. Extension speaker included.

Stationmaster Antenna



Perfect for your base station. ¾ wave feed design for maximum range.

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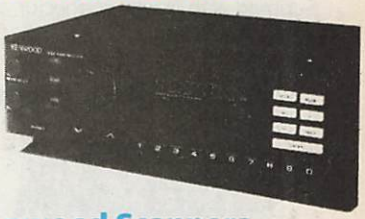
C220 Digital Frequency Counter $119

This compact frequency display works from 1kHz to 250MHz with a five digit readout. It works on both transmit and receive (with a 455KHz IF frequency down system. The meter is set up to connect between the transceiver and the antenna. Full instructions for installation are included. The FC220 runs off 13.5V so it is suitable for mobile operation. Input voltage required is 20mV-20V RMS.

Kenwood Scanners



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500kHz to 900MHz coverage
- 100 easy to operate memory channels with messages and bandmarks
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Kenwood R-5000

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TX840 AM/SSB Transceiver

normal price $349
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Uniden 310e – Super compact 27MHz Handheld

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40 channel handheld with battery pack, magnetic base, pouch, charger cord. Perfect for emergencies. 1.5 or 4 watt output (switchable).

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Perfect for gutter mounting, this brilliant new range of epoxy covered helicals comes in all sizes and will withstand the toughest conditions. Because the antenna is covered with epoxy, chipping and cracking won't occur and the winding is not attacked by salt, dust or water.
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Prices $17 to $59
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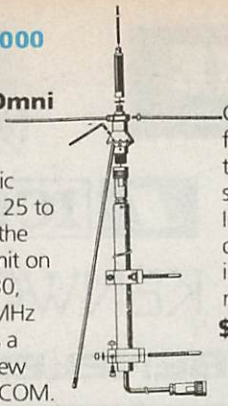
ICOM AH-7000

Super Wideband Omni directional Antenna



You get fantastic reception from 25 to 1300MHz and the ability to transmit on the 50, 144, 430, 900 and 1200MHz bands with this a revolutionary new antenna from ICOM. Input power rating is 200 watts. Length is only 1.7 metres. Supplied with N-type connector and 5D-2V coax.

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This superb new scanner from ICOM is the ultimate.

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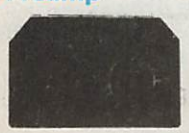

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Boost your reception with this great little signaliser. Connects in seconds.

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Heavy duty suppressor power cable

Get added protection and freedom from interference with this heavy duty, low loss suppressor power cable. Incorporates heavy duty wiring, double fusing and a high quality in-line suppressor for better reception.

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Teflock – the ultimate PL259 connector

This revolutionary new UHF connector is guaranteed not to short or break. It goes together without soldering. The unique Teflon insulator withstands heat and rough handling. And it's fully reusable.

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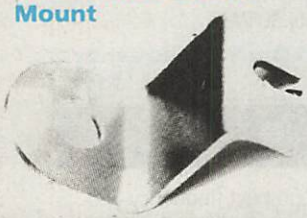
1-9 ..... $5.50 plus $3.50 P&P
10-25 ... $4.50 plus $4.50 P&P

Call us for all connector requirements. We carry a comprehensive range of Japanese and Australian connectors.

The Ultimate Guard Mount



Don't go drilling holes in your new car or 4WD. This great new Aussie made mount will do the trick. It's made from high quality stainless steel and will fit to the bonnet, boot or inside guard.

Guard mount $11.50
Waterproof base $6.90
post and packing $2.50

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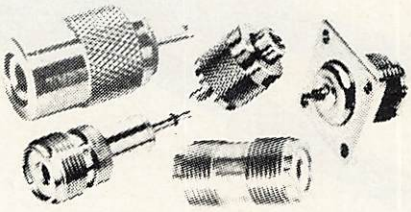
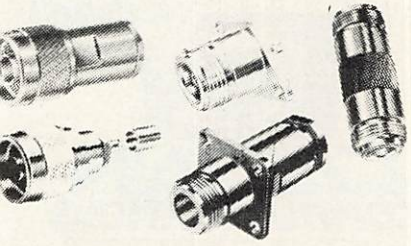
M-TYPE HF-VHF-UHF COAXIAL



4-101 PL259 Plug (takes reducer)
4-103 PL259 Teflock RG58
4-104 PL259 Simple RG58/U
4-105 C32-9 PL259 Plug RG58/U
4-1051 C32-4 PL259 for RG213/U
4-106 PL259 to suit RG10FB Coax
4-107 C32-66 Right Angle PL259
4-108 PL259 Reducer RG58/U
4-111 SO239 Socket Front Nut
4-112 SO239 Socket 4 point flange
4-113 SO239 Socket 2 point flange
4-114 SO239 short socket no flange
4-115 PL258 double female adaptor
4-116 UHF double male connector
4-117 UHF right angle connector
4-118 UHF T connector 3 female
4-119 UHF T connector 2F/1M
4-120 SO239 to RCA plug Adaptor
4-1201 PL259 to RCA Socket Adaptor
4-121 SO239 to 3.5mm Plug Adaptor
4-122 UHF lightning arrestor
4-123 CA35A Welz surge protector
4-127 Feed thru D/F 2" connector

N-TYPE UHF COAXIAL



4-201 N-type Plug for RG58/U
4-2011 C390-15 N-type Plug RG58
4-204 N-type Plug for RG213/U
4-206 N-type Plug for RG10FB
4-2071 N-type Plug suit LDF4/50
4-211 N-type socket inline RG58
04-212 C39-31 N-type inline RG59
04-214 N-type socket inline RG213
04-215 N-type socket inline RG214
04-230 N-type socket panel mount no flange
04-232 N-type socket panel mount 2
04-233 C39-37 N-panel socket to R58
04-240 N-type double female connector
04-241 N-type double male connector
04-243 N-type T connector 2F/1M
04-244 N-type T connector 3 female
04-245 N-type right angle connector
04-271 N-type Male/BNC female adaptor
04-272 N-type Female/BNC male adaptor
04-273 N-type Female/BNC female adaptor

BNC UHF COAXIAL

04-301 BNC Plug SCR type for RG58
04-303 BNC Plug SCR type for RG59
04-304 BNC Plug for RG213/U Coax
04-306 BNC Plug to suit RG10FB
04-311 BNC Crimp for RG58 UG
04-321 BNC Female panel mount socket
04-322 BNC Female short panel socket
04-323 BNC panel mount UG1094 2N
04-324 BNC Female panel socket 4P FL
04-331 BNC Female in line socket
04-332 C53-86 inline crimp RG58
04-333 BNC socket inline for RG59U
04-351 BNC Double Female adaptor
04-352 BNC Double Male adaptor
04-353 BNC T connector 2F/1M
04-354 BNC T connector 3F
04-355 BNC right angle connector
04-371 BNC Male/UHF Female adaptor
04-372 BNC Female/UHF Male adaptor

2.5mm AUDIO

04-401 2.5mm plug plastic red/black
04-403 2.5mm socket inline plastic black
04-405 2.5mm socket panel mount

3.5mm AUDIO

04-411 3.5mm plug plastic black/red
04-412 3.5mm plug metal
04-413 3.5mm socket inline plastic
04-414 3.5mm socket inline metal body
04-415 3.5mm socket panel mount
04-417 3.5mm change over socket
04-419 3.5mm plug to RCA socket
04-421 3.5mm stereo plug plst b&r
04-423 3.5mm stereo socket inline
04-424 3.5mm stereo socket metal
04-425 3.5mm stereo socket panel mount

6.5mm AUDIO

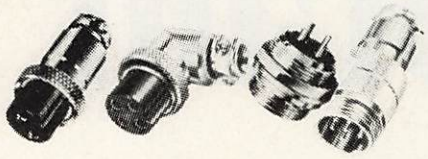
04-431 6.5mm plug plastic black/red
04-432 6.5mm metal mono plug
04-433 6.5mm cable jack plastic black
04-434 6.5mm metal inline socket
04-435 6.5mm socket panel mount
04-436 6.5mm socket panel with cutout
04-441 6.5mm stereo plug plastic black
04-443 6.5mm stereo cable jack plastic
04-445 6.5mm stereo socket panel mount
04-446 6.5mm stereo panel socket with crossover

RCA and DIN AUDIO

04-451 RCA plug black and red
04-461 2 pin DIN plug
04-462 2 pin DIN socket
04-467 DIN plug 5 pin
04-4671 PD5M 5 pin DIN plug metal

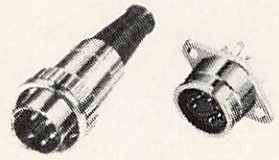
04-468 DIN socket 5 pin inline
04-469 DIN 5 pin panel mount socket 45DEG
04-470 DIN plug 5 pin 240 degree
04-47006 PD6 6 pin DIN plug
04-471 7 pin DIN plug
04-472 7 pin DIN socket

MICROPHONE LOCK RING/CB TYPE



04-501 2 pin mic plug
04-502 2 pin mic plug L type
04-503 2 pin mic inline socket
04-504 2 pin mic panel socket
04-505 3 pin mic plug
04-506 3 pin mic plug L type
04-507 3 pin mic inline socket
04-508 3 pin mic panel socket
04-509 4 pin mic plug
04-510 4 pin mic plug L type
04-511 4 pin inline socket
04-512 4 pin mic panel socket
04-513 5 pin mic plug
04-514 5 pin mic plug L type
04-515 5 pin mic inline socket
04-516 5 pin mic panel socket
04-517 6 pin mic plug
04-518 6 pin mic plug L type
04-519 6 pin inline socket
04-520 6 pin mic panel socket
04-521 7 pin mic plug
04-522 7 in mic plug I type
04-523 7 pin mic panel socket
04-524 7 pin mic inline socket
04-525 8 pin mic plug
04-526 8 pin mic plug I type
04-527 8 pin in line socket
04-528 8 pin panel socket

DIN AUDIO

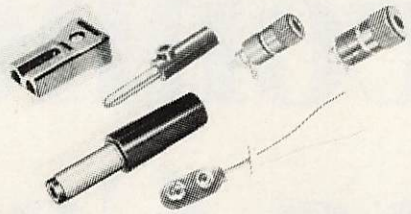


04-540 DIN mic plug 5 pin
04-543 DIN mic socket 5 pin panel mounting

CANNON TYPE DELUXE AUDIO

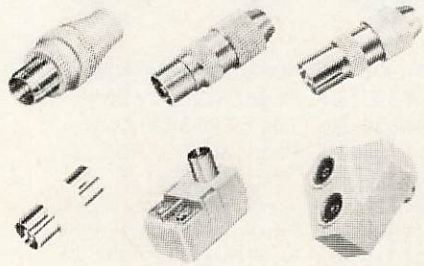
04-561 3 pin mic plug inline
04-562 3 pin mic plug panel mount
04-5621 3P C-type p-mount black
04-563 3 pin mic socket inline
04-564 3 pin mic socket panel mount

DC POWER



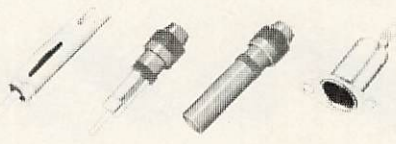
04-601 2 pin rectangular power plug
04-6010 PC2F female con, & housing
04-6011 PC2M male con. & housing
04-602 Banana plug screw type bk
04-611 Binding post 4mm red/black
04-612 Binding post large black
04-620 Alligator clips, black or red
04-628 Auto cigarette lighter plug
04-640 DC power plug 1mm P411
04-641 DC power plug 1.3mm P413
04-643 DC power plug 2.1mm
04-644 DC power socket panel 2.1mm
04-646 DC power plug 2.5mm
04-647 DC power socket panel mount 2.5mm
04-648 DC power socket 2.5mm plastic
04-649 DC power plug 3.1mm P431
04-680 Battery snap I type
04-681 Battery snap T type
04-682 Battery pack 2 x AA
04-683 Battery pack 4 x AA
04-684 Battery pack 6 x AA
04-685 Battery pack 8 x AA

TV COAXIAL AND 300 OHMS



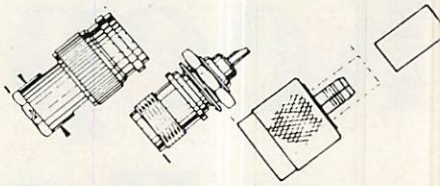
04-701 TV PAL plug plastic
04-702 TV PAL plug for RG59/U metal
04-703 TV PAL inline socket plastic
04-704 TV PAL inline socket metal
04-705 TV PAL double male connector
04-706 TV PAL double female connector
04-707 TV PAL panel socket s/face mount
04-708 TV PAL plug w/75/300 ohm TF
04-709 TV PAL 1m 2F 2 way splitter

AUTO ANTENNA TYPE



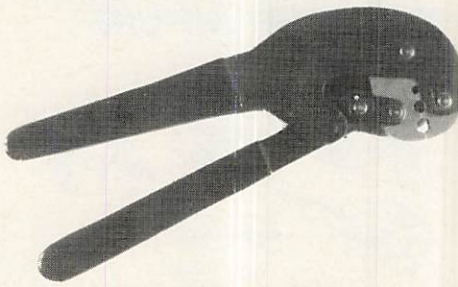
04-740 Auto antenna plug
04-744 Auto antenna panel socket
04-747 Auto socket inline
04-748 Auto socket with cable

TNC 800MHz COAXIAL



04-801 Supa crimp plug RG58
04-802 C57-01 TNC for RG58U MILSP
04-803 C57-14 TNC for RG58 MILSP
04-806 TNC panel socket, single hole
04-809 TNC male/BNC female adaptor

CONNECTOR CRIMPING TOOL



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Talking to the world — the Gladesville Amateur Radio Club.

SYDNEY RADIO FIELD DAY

The second Sydney Radio Field Day, held on Sunday 13 December, proved to be another success for all concerned. Official reports put the attendance at close to 3000, across the day.

The field day was jointly organised by the Sydney Radio Group and the Sydney CB Radio Centre. It followed their first field day in June of last year, held at the Sydney CB Centre.

This second day found itself at the St Ives Showground, where a lock-up pavillion was used for most of the trade.

The undercover display included a large range of second-hand radio equipment, bought and sold by private CBers. The latest in communications was presented by the Sydney CB Centre.

A signals vehicle from the 7th Field Regiment of the Royal Australian Artillery attracted much interest, as did the amateur and CB stations operated by the Gladesville Amateur Radio Club and the Sydney Radio Group.

Organisers of the field day intend to stage a third event later in the year, around July or August, and are aiming for a larger venue which will allow more room for displays and people.

And for those who missed the field day — let these pictures tell the story.

Seen at the field day . . .

The award for being everywhere at once goes to ***Graham Cotterell,*** organiser of the bash and Sydney Radio's numero uno. Graham said the decision to hold a second field day was made 'almost instantly, after the first one earlier last year'.

He must have felt pretty lonely at the end of the day, when the thousands-strong crowd and hundred-strong Sydney Radio Group shot through and left him (and two others) to pull down an enormous marquee used on the day.

Bob Saint paid a quick visit, wearing a nice clean tracksuit just for the occasion. Why does he keep reminding everyone that he represents the Lakemba Area CB Club, and not the Lima Alpha CB Club?

Sydney clublands' other superstar, ***Sam Voron***, looked a bit tired on the day. Could it be because he was up until almost midnight the night before, writing out dockets and sale tickets for his hundreds of second-hand rigs?

CBA contributor ***Steve Griffin*** was there, too — spied carting off a complete collection of CB Action magazines which he bought. Trying to catch up on the back-issues, Steve?

David Smith, of the Sydney CB Radio Centre, had a lot to show off. New gear — like the Cobra SR12, Bearcat 800XLT and Black Jaguar BJ200 scanners. A new book — his 'Australian CB Communications Guide'. And, nine months in the making, his son Mitch — lovely Lynda Smith completed the new family trio, congrats to the proud parents.

Also seen — ***Des Cottle,*** CREST exec and fibre optics wiz . . . ***Chris Mlynaria,*** one of the resident hams from Dick Smith Electronics . . . infamous ***Bob 'Wombat' Lear*** parked the Wombat-mobile up the road and flogged kits to all and sundry . . . and cyclist and newly-ordained SR member ***Len Campbell*** warmed up for his world-record bicycling attempt later this year.

David Flynn made his mark as the trendiest dresser on the day, back on the road again with a new engine in his sporty Fiat X1/9. He then won the raffle for a radio-controlled buggy, donated by Tandy's Gordon store manager ***Scott Harding*** . . . well, that makes two toy cars that Flynn owns.

Fellow CBA contributor ***Russell Bryant*** played it safe by leaving all cash and credit cards at home . . . he put together the scanning section of David Smith's CB Guide, and Flynn contributed all the UHF pages.

Who is the best mimic on CB radio? Possibly ***Toby St John,*** the SR116, who along with SR's Jeff and Terry ran the HF/UHF station from the showground. Ask Toby to do his '114' impression — satisfaction guaranteed.

And through it all, the lovely ***Suzie Thoreau*** sizzled sausages (dare we say she's a bit of a sizzler herself?) and kept the food and drink in supply all day.

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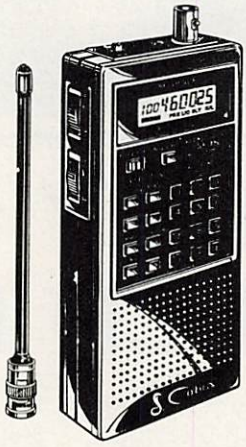

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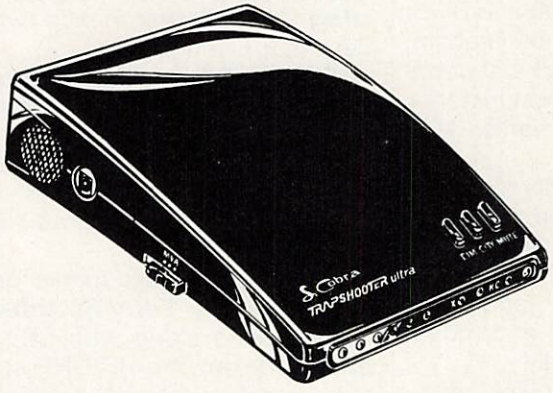

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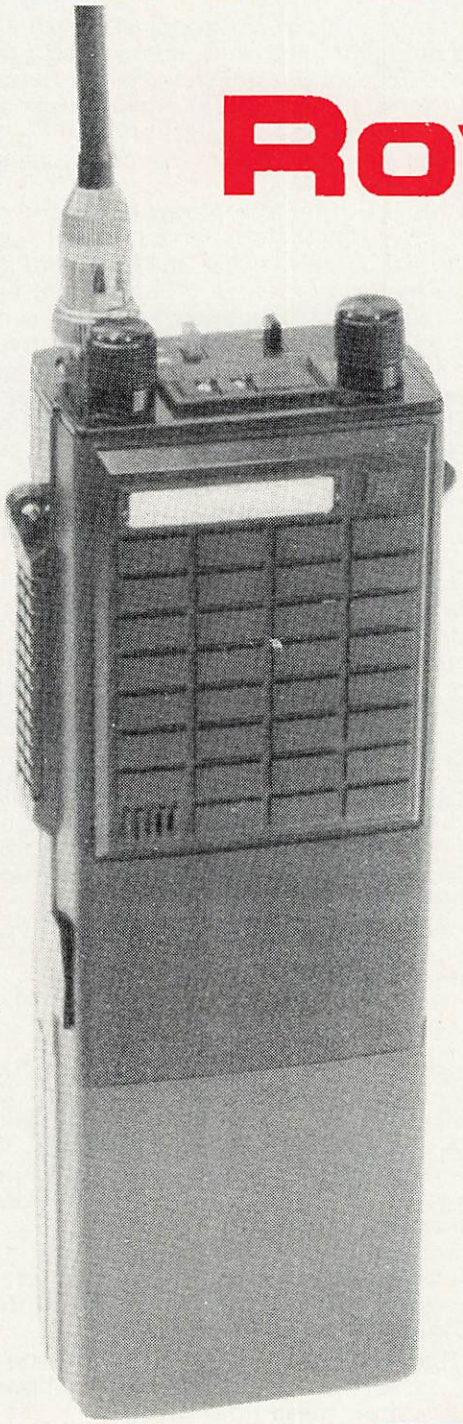

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SYDNEY SCENE

BY STEVE GRIFFIN

Firstly, I hope everyone had a great time over the festive break and, I'm not sure about your area but, here in the rage city most people are either still celebrating or at least recovering from a funny little Bi-centenary type New Years' Eve.

Unfortunately I missed this years 'Riot At The Rocks' but I was informed that, apart from a few extra brawls, all things went well. Anyway I guess it's "Happy 200th, Australia", and lets hope there's some great parties, and a lot more sore heads before the end of the year . . . Hint Hint!!

★ ★ ★

I decided to pack the family up and, along with a few friends, headed to Canberra for the Street Machine Summernats at the Natex Exhibition Centre and I tell you what . . .WE ALL HAD A BALL!

This was the first event of this nature held in Canberra on a New Years weekend, and did they get a shock. I'd say there were more people in the capital than there was in any other city over that period. I know there was literally thousands of excellent looking Street Machines — and females — there, so it was all systems go on Thursday the 31 December, and all three car loads of us were ready to leave. We did manage to catch a few weather reports, which didn't sound too good for the weekend but it ended up being excellent anyway.

At a rough average, I'd say one in every three cars we passed on the way were going there. How do I know you ask . . .Well, that's a silly question!

If it looked obvious, I asked them. We took a video tape camera with us, and some drivers that we passed were stunned at the fact that, while they were travelling at speeds of up to 100kph some silly clowns in a hot Holden came up beside them, camera at the ready yelling out things like: "Are you going to the Nats?"

You can image the reaction from the people who didn't have a clue as to what we were on about — particularly the clown in the XD Sedan who thought we were nuts and tried to run us into the bushes.

The New Years Eve party was excellent, and so were the live bands which provided great entertainment every night.

Obviously the best part of the whole event was the competitions, including the Burnouts, Go/Whoa, the Spear a Spud, the MotorKhana and even the Show and Shine. There were some "on the street" things happening also, which I'm sure your own imagination can look after.

Believe me it was one hell of an event, and Canberra seems to have come out of it quite well and, apart from the massive clean-up afterwards, a few motel owners said that their doors are open every time this event takes place. Service Stations love it and so do the food and drink stores. So for such an event, and crowd, there certainly were smiling faces all around. Probably the biggest smile was on the face of the organiser promoter and good friend, Chic Henry. I managed to catch up with him a couple of times over the weekend, something I didn't expect to do, and actually got the chance to have a bit of a chin-wag to him about how things were going. Chic looked at me, smiled and said.

'Great, really great!, I didn't expect such a great crowd for a holiday period'.

I asked Chic whether there had been any complaints from any offical departments such as the police, or were there any other reasons that could put a stop to any future events. "There hasn't been anything out of the ordinary, and to date, as with all the usual Easter weekend and other events, the Commonwealth police have always been great. Also this year with the help of all the MSS security guards on the grounds, the twits actually had to think twice before doing anything stupid, so everybody is happy", he said.

At this stage the venue is booked for another three years, so I hope everyone makes the most of it."

Sounds good huh!

CBers also come out in their numbers at this type of event as well. A few I managed to catch up with were members of various clubs such as Blackwood Radio, Western Radio, Clone City, Outback Drivers, and assorted others from all parts of the country. The majority that I spoke to said that, even though they were in clubs, many set out on their own as people left at different time and from different places, because their work and play hours varied greatly. It's encouraging to see good numbers attending these events, and great to see many of the Street Machines had CBs fitted.

The next such event is in Wagga Wagga over the coming Easter weekend.

Be there or be square!

★ ★ ★

A great bunch of blokes from Canberra have a funny group named "Knights of the Realm". Operators Sir Brian, Sir Stephen, Sir Patrick, and Sir Herbert are quite capable of keeping those sandbaggers rolling on the floor with their unique way of using the old English language. "Thou will keepeth thy hands to thyself", etc.

It may seem a little silly on paper, but you should hear them! I am quite sure anyone who hears them will be rushed to the nearest hospital suffering from fits of laughter. Good one guys!

Another thing about these guys is that they are smart! Yes, smart — smart enough to come to Sydney to buy their radio gear.

They came to the December '87 Sydney Radio Field Day.

These guys said that is they added the cost of petrol for one car onto the price of a good second hand radio here in Sydney, they would still be about $70 in front, on an average purchase in Canberra.

SYDNEY SCENE

By STEVE GRIFFIN

Its certainly easy to see why some of the Canberra retailers have gone into other fields!

While on the subject of field days, the Sydney Radio field day in December was a huge success this time. The day was held in the grounds of the St Ives Showground and there were many stall type displays. GME/Electrophone had their range of goodies on show, as did Hatadi Pearce Simpson. Even Tandy had a range of computers on show.

The Sydney CB Radio Centre had Uniden gear and assorted other goodies there as well, so it was a well covered event. Nobody was left out as there seemed to be something for everyone. There were marine radios, amateur radios, a handful of commercial radios, scanners, short wave receivers and of course, HF and UHF CBs.

Various frequency lists were available, as well as the Australian CB Communication Guide 1988. This guide is quite a handy reference to the many different aspects of communications, and is available by post. Send $10 (includes postage) to PO Box 298, Dee Why, NSW 2099.

Sam Voron had his range of second hand goodies there, and even David Flynn had some items floating around. Gladesville Amateur Radio Club had a display emphasising their Licence Training Courses.

The Army had an interesting display of some of the radio gear they use.

One person who nobody expected to be there was the Wombat — yes The Wombat. the original, with his little range of Wombat Shop type goodies.

Planning is well under way for the next field day already so get your finger out, save some money and get into the good gear at the next Sydney Radio Field Day.

★ ★ ★

Import news for all the Kiwi readers. If you haven't heard already, your CB Radio Service is going to 40ch AM/SSb in April. The new frequencies will be: Ch 1-26.360Mhz, to Ch 40-26.800MHz. The new power rating I'm told, will be the standard 4w AM and 12w PEP.

Suitable equipment is already in the making and should be ready and available before this magazine is on sale.

If any Oz type people need to know the frequencies, start with the above and don't forget the usual gaps. By the way the spacing is now 10kHz not 25kHz, as with the 14ch service.

I think a little pat on the back for the NZ Post Office wouldn't go astray. How about some of you Kiwis dropping me a line and let me know what the general opinion of the new service is over there.

★ ★ ★

If anybody needs a particular back issue of the CBA, back as far as the original first issue, just to complete your set, it just so happens that I have some spares. Drop me a line and let me know which one/s you need and we can work something out.

★ ★ ★

The FM CB Club of Australia wishes to announce their new address: PO Box 375 Chatswood, 2057, instead of through me. Thank God! It's hard enough looking after my own mail.

★ ★ ★

I received a letter from a gent who agreed about the poor quality and availability of QSL cards lately. If anyone knows of a printer who is willing to do multi-colored or even black on white cards, double sided or single and is not too highly priced, let me fnow as I could probably find a few customers straight away. We know that a lot of the cost is in the artwork, but really, somebody who wishes to do a good turn for CBers must be out there.

That's it from me for another issue. Keep those letters coming. It's great to get a good response, but I do wish I could put a few more in the column. By the time I take out the names and the down to earth details there is not a lot left . . . but they're good anyway./

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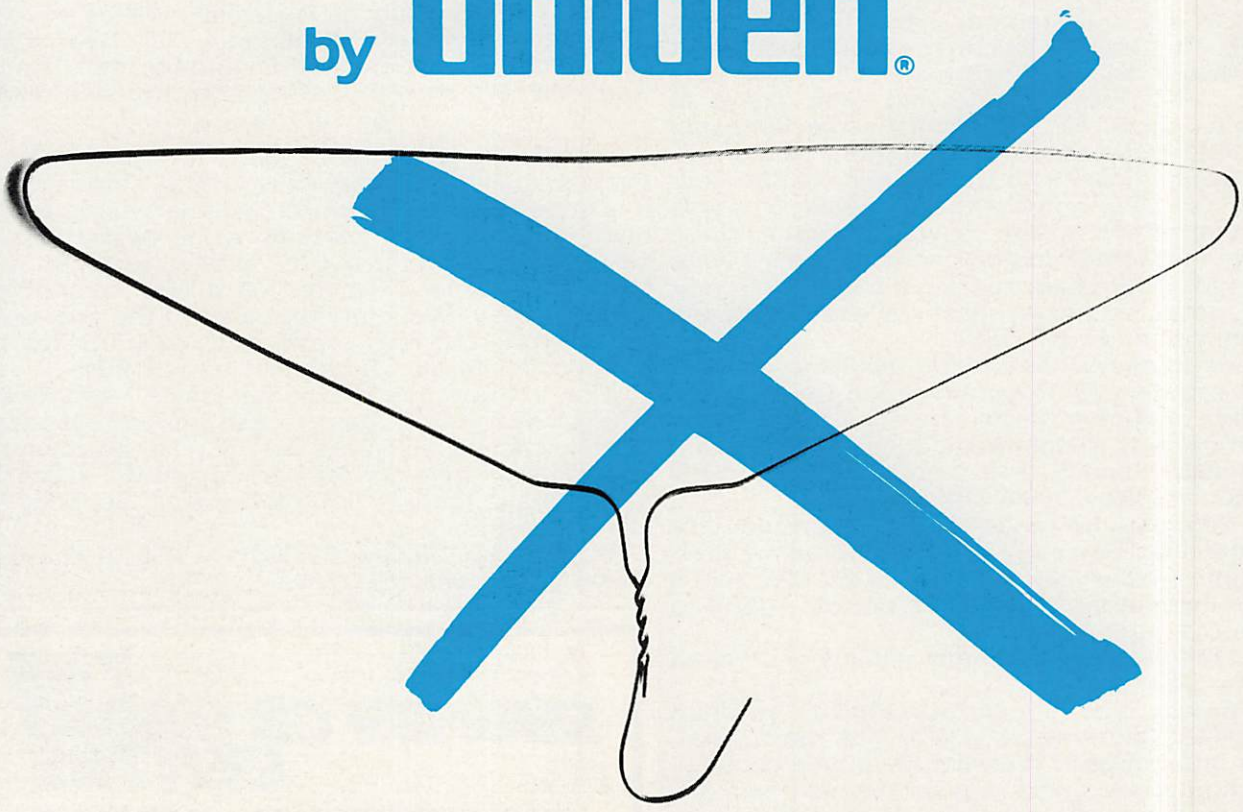

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"They were the best of times, they were the worst of times" — a classic phrase of dark clouds and their silver linings.

If CB had a 'worst of days', then it would have been the late '70s. There we were, stuck with 18 crowded channels and not many more sensible operators. The rest were the kids who picked up a cheap AM from the corner shop or chemist, or whose parents fell for the infamous Dick Smith advert which began 'Hey Kids!'.

But these same days gave us some top-line, and even high-tech rigs which you just don't see in 1988. Base stations were really to the forefront, I suppose, and it's so noticeable because of today's selection — only two sideband bases, both of which are made by Uniden. Has the need or desire for a super-base gone from the heart of the CBer, or is it a case of the spirit being willing, but the cheque-book weak?

SBE had their 'Sidebander' mobile and 'Console' base stations, with keypad control of bandscanning, priority channels, push-button channel entry — if you saw one today, you'd swear it was related to the Sawtron 999.

ARF teased us in '79 with the Model 2001 — digital frequency readout, push-button operation, a massive radio that looked like it was meant to be rack-mounted. Meanwhile, the Stoner PRO-40 was a real snob-appeal base, looking more like a HF ham rig than CB which had every possible feature except AM operation!

Even more mundane and affordable rigs had some style, like the Wagner 510/Super Bengal Mk II.

My own favorite would have to be the Tram D201. The Tram had a large lollipop base mike, old-fashioned knobs and dials, and on the inside — valves and more valves! Finished with a woodgrain surround, it was the ultimate in class, bringing together the best of two eras — vintage 'wireless' and modern radio.

I was fortunate enough to own one of these, and discovered it in the window of a local pawn shop. The manager had apparently dismissed the D201 as a truly ancient rig — " . . . yes, quite good condition considering the age, all the lights come on, I suppose it works well enough for a museum-piece . . ."

It was one of those times when luck is truly a lady — I was there, the Tram was there, and my plastic money was even in the black, I don't think the texta on the price tag was even dry before the Tram was pulled off the shelf and sold for about two hundred dollars, which the manager and I agreed was still a fair price for such an old but pristine wireless.

Another aspect of that boom period were the CB radios fitted as 'options' on new cars and trucks. The Americans had really kicked this off, and you could buy a GM pick-up or 4WD which included a 'GM'-labelled AM CB. I don't know how far this went on our own shores, but I can recall seeing a Ford tractor with a FM320 bearing the blue 'Ford' logo where the 'Philips' used to be.

Now that 27MHz has regained some semblance of sanity, it is no wonder that Ford are considering the inclusion of AM rigs as options in their next series of 'Redwood' utilities. If any of the dealers or importers can get in on the act, this could represent a very profitable contract indeed.

And to 477 MHz, then — what about a base station for the UHFers? As pleased as I am with my 'base console' from Electrophone, I really think there must be more to a UHF base station than a pretty box, a power supply and an external speaker.

A few of the local UHFers and I sat around a table one night and, for interest's sake, came up with a list of features, and some design hints, for a new generation of UHF CB radios — not just base stations, but mobiles and even a portable.

In fact, it makes a great discussion on air or off, and I think a lot of groups could find it a thought-provoking exercise, and a lot of fun too!

At this point, I'd like to hear from readers as to your own preferences — how would you design a UHF CB? What could make it a better rig, without costing the earth? Drop me a line (PO Box 429, Milsons Point, 2061) and share your thoughts.

Finally, could anyone who has seen the latest James Bond movie, 'The Living Daylights', have failed to notice that Philips are now supplying the gadgets for 007? Everything from exploding key-rings to ghetto-blasters that really live up to their name — sort of makes you wonder what tricks may lie hidden in the FM620.

Mind you, Bond's Aston Martin also has a Philips car radio which tunes into the police band. Nice to know that a few Sawtron-equipped UHFers were years ahead of the British Secret Service, eh?

Until next time — keep the faith!

P.S. A quick note to Greg Towells, my fellow UHF columnist — thanks for the mention in last issue, and yes, the Fiat should be back on the road by the time you read this, complete with a new engine . . . and a few minor modifications 'Q' has fitted an ejector seat, laser beams and machine guns — just the ticket for Sydney during the rush hour!

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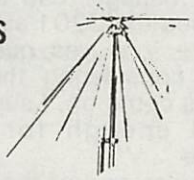

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CB ACTION READER SURVEY

CB ACTION first appeared in 1977, as a monthly magazine. Apart from a short absence in 1981-82, we have been keeping readers informed and entertained for over ten years.

Thoughout this time, we have constantly altered and revised our format to cater for the changing CB scene — and our excellent sales figures (24,000 per issue) have proven that we have moved in the right direction.

To ensure that we continue to do so, we have prepared this survey for you, our readers. We hope that you will enter into the spirit of things, and complete this questionnaire and return it to us.

Not only will you be keeping CB ACTION 'on track' with your interests, but you'll also have the chance of winning a free year's subscription (two per state/territory to be given away).

The survey is divided into three sections: personal details; CB radio; and information on CB ACTION itself.

The personal section has been designed to give us a picture of our 'average readership — age, marital status, sex and type of work they do. This is the first step in our getting to know you a little better.

The second section concerns CB radio, and other associated aspects. This is not only of interest to CB ACTION, but also to the entire CB industry. Knowing your requirements, both this magazine and the industry can make sure that we cater for them.

The third section directly concerns CB ACTION magazine, in that we are asking for your comments on the columns and articles we publish in every issue. We have also provided room for you to make your own comments, so if there's anything you want to tell us — maybe you feel there is a special column or area we should be featuring, or have some opinions about our content — then please do so.

You can also jot your thoughts down on a separate piece of paper and send them in with the survey sheet, if you need more room than we've provided. Just make sure that your name and address also appears on the letter.

The overall results of this survey will be printed in a future issue of CB ACTION. Apart from this, no information will be divulged to anyone outside the editorial staff of CB ACTION magazine.

So, go to it — and send your completed survey form to

CB ACTION
READER SURVEY
GPO Box 628E
Melbourne Vic 3001

(If you don't want to cut up your issue of CB ACTION, a photocopy of this survey will do just as well — surveys from overseas readers would be very welcome).

PERSONAL DETAILS

Name .....
Address .....
State ..... Postcode .....
☐ Male ☐ Female ☐ Married ☐ Single ☐ Age.....
Occupation .....

CB RADIO

What year did you first get involved in CB radio?
What type of rig did you start with? ☐ AM ☐ AM/SSB ☐ UHF
What brand was your first rig? .....
What do you mainly use CB radio for?
☐ Social contact ☐ Hobby radio ☐ Business
Average number of hours you operate (weekly)
Do you have a CB licence? ☐ Yes ☐ No
Are you a member of a radio club or repeater association?
☐ Yes ☐ No
Do you have an amateur radio licence?
☐ Novice ☐ Limited ☐ Combined ☐ Full-call
If not, do you intend getting an amateur licence?
☐ Yes ☐ No

Please give details of the rigs you currently operate:

Make/model .....
☐ AM ☐ AM/SSB ☐ UHF
Operating as a ☐ Base ☐ Mobile ☐ Portable

Make/model .....
☐ AM ☐ AM/SSB ☐ UHF
Operating as a ☐ Base ☐ Mobile ☐ Portable

Make/model .....
☐ AM ☐ AM/SSB ☐ UHF
Operating as a ☐ Base ☐ Mobile ☐ Portable

Make/model .....
☐ AM ☐ AM/SSB ☐ UHF
Operating as a ☐ Base ☐ Mobile ☐ Portable

Do you have a short-wave receiver?

Make/model .....

Do you have a personal computer?

Make/model .....

Within the next twelve months, are you like to buy any of the following?

☐ AM CB radio.....☐ AM/SSB CB radio
☐ UHF CB radio.....☐ UHF CB handheld
☐ Scanner .....☐ Short-wave receiver
☐ Personal Computer

Which of the following CB accessories do you have?

☐ Power microphone ☐ SWR meter
☐ Antenna matcher ☐ TV1 filter
☐ 27 MHz beam ☐ 477 MHz beam
☐ Linear amplifier (27MHz or 477 MHz?)
☐ Other (please specify) .....

INFORMATION ON CB ACTION MAGAZINE

To provide us with a good cross-section of what you want to read, we ask you to carefully choose which articles and columns you prefer — those you like the most, in that order.

Please mark each box with a number indicating your preference for that column or article, eg '1' for your favourite column or most preferred article, '2' for the second etx.

Please don't mark any article that you don't wish to read, even occasionally.

☐ On Channel ☐ Scanning around
☐ Log Book☐ Club News
☐ Sydney Scene ☐ The Monitor
☐ Queensland Scene ☐ Repeater Listing
☐ Over-Bight ☐ Club Register
☐ Out West ☐ Rig Review
☐ In Like Flynn ☐ New Gear
☐ UHF News

I would like to see more articles on: (once again, please mark your preferences)

☐ Technical topics
☐ Do-it-yourself projects
☐ Humour and short stories
☐ Profiles on clubs/individuals/industry
☐ 27 MHz
☐ UHF CB
☐ Scanning
☐ Other (please specify) .....

Do you subscribe to CB ACTION?

☐ Yes ☐ No
Do you ☐ buy CB ACTION ☐ read someone else's copy
Do you buy CB ACTION ☐ every issue ☐ less often

Do you regularly read any of the following magazines?

☐ Amateur Radio Action ☐ Amateur Radio
☐ Australian Electronics Monthly ☐ E.T.I.
☐ Electronics Australia ☐ Two-way

Any other comments on CB ACTION/

.....
.....
.....
.....
.....

Thank you for completing this survey — please post it to us as soon as possible — we're waiting to hear from you!

UNDERSTANDING THE IONOSPHERE

By Tony Gilbert

In an article entitled "Solar Cycle No 22" (Amateur Radio Action, Vol 8, No 1) some years ago, Rob McKibbin explained the composition of sunspots and how they have been recorded over a period of more than 300 years. The record of sunspot activity provides a useful reference for predicting future solar activity once the effect of these solar explosions and other incidents which affect the ionosphere are understood.

When we speak of "Solar Cycle 21" and the eleven year sunspot cycle, the maths just don't make sense. 21 cycles of 11 years each add up to only 231 years - counted back from the present day, this puts the first sunspot cycle around 1750 AD ... leaving us to ponder what the sun had been doing up to that date.

In fact, 1750 AD saw the beginning of consistent recording of sunspot numbers in the western world. Around that time, as George Jacobs and Theodore Cohen note in "The Shortwave Propagation handbook", European scientists began to independently record the number of sunspots visible on the solar surface on a regular basis. These recordings were made visually without the aid of scientific instruments available to us today.

This, then, was recorded as the beginning of Solar Cycle 1. Many such cycles had come and gone before 1750, but this was the first to be accurately documented. Even then, however, those recording the sunspot numbers did not realise that they were observing a cyclical event.

It was left to Hendrick Schwabe, a German pharmacist and amateur astronomer, to make the connection early in the 19th century after years of careful daily observation. Schwabe said the sunspots came and went in cycles of about a decade.

It is highly probable that the Chinese had made this "connection" many thousands of years before Schwabe published his findings in 1843. The ancient elite of China were dedicated skywatchers and observed the comings and goings of comets and other heavenly beings, carefully documenting their observations, long before Europeans began their astronomical pursuits.

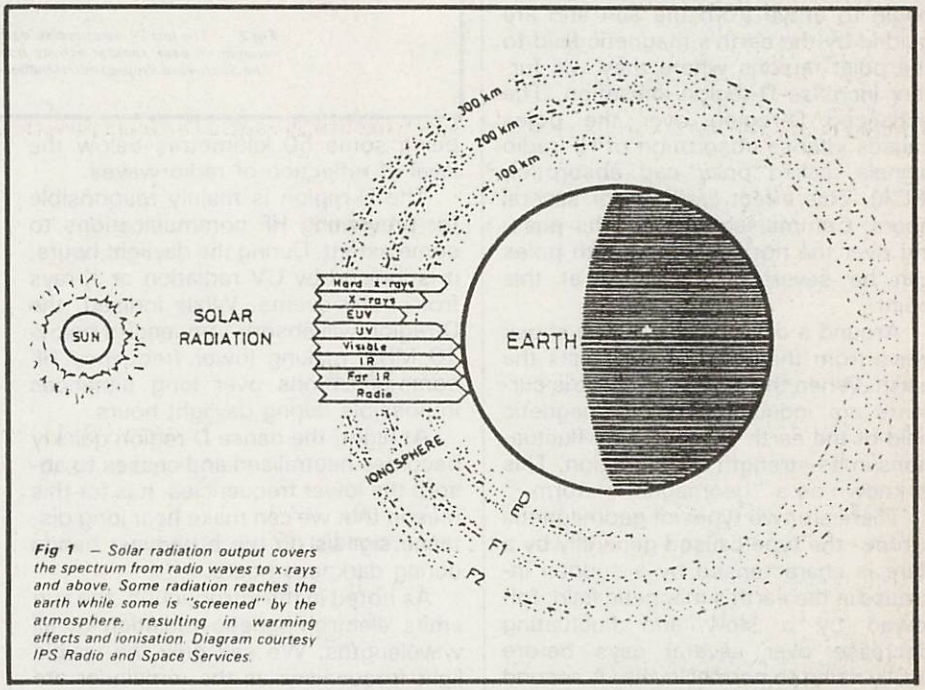

Fig 1 — Solar radiation output covers the spectrum from radio waves to x-rays and above. Some radiation reaches the earth while some is "screened" by the atmosphere, resulting in warming effects and ionisation. Diagram courtesy IPS Radio and Space Services.

They might have first seen these sunspots around sunset, when the solar orb is enlarged and filtered by the earth's atmosphere and the larger sunspots become clearly visible to the naked eye. (Warning: While large sunspots can be seen with the naked eye, direct observation of the sun can cause seious eye damage.)

The reason that sunspots can be so easily observed is that they are cool areas on the sun's fiery surface - relatively cool, anyway, with temperatures about 1000 degrees less than the rest of the sun. They appear as dark areas on the face of the sun, sometimes alone but more often in small clusters.

It is fair to say that the more sunspots there are on the face of the sun, the more chance there is of good propagation on the high frequency (HF) bands. This is not, however, always true.

Sunspots are not necessary for lower frequency HF communications. The sun emits energy at a wide range of frequencies from radio to X-ray frequencies and above - see Figure 1. Even without significant sunspots, some of the particles which make up the upper layers of the atmosphere will be "ionised" by ultraviolet (UV) radiation.It is generally the D-region (at about 50 kilometres above the earth) which affects low frequency propagation of radio waves during these "quiet" periods.

When a sunspot apears on the solar surface, it can be accompanied by incidents which both enhance and disturb ionospheric propagation. As it is solar radiation that generates the ionosphere in the first place, variations in the output of radiation from the sun caused by sunspots will vary the level of ionisation in our atmosphere.

While a greater number of sunspots will usually mean better HF propagation, it can also mean a greater possibility of violent storm activity on the surface of the sun. These storms come in the form of a "flare", a large brilliant white flash on the solar face.

Flares usually occur clse to sunspot areas. The first evidence of a flare, coming at the same time as the flash is observed, is in the form of X-rays which ionise the D-region of the ionosphere, increasing its ability to absorb frequencies below 10 MHz and causing a shortwave fadeout which may last anything from 10 minutes to two hours. Depending on the severity of the

UNDERSTANDING THE IONOSPHERE

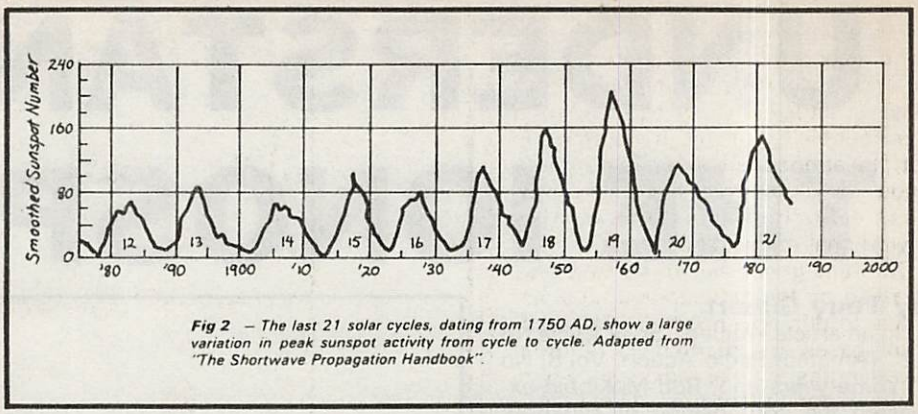

Fig 2 – The last 21 solar cycles, dating from 1750 AD, show a large variation in peak sunspot activity from cycle to cycle. Adapted from "The Shortwave Propagation Handbook".

flare, communications on some low frequency bands may be totally cut.

About 10 minutes after the flare is first seen, fast particles called Protons begin to arrive from the sun and are guided by the earth's magnetic field to the polar regions where they will further increase D-region ionisation. The enhanced D-region over the poles causes intense absorption of HF radio signals, called polar cap absorption (PCA). This effect can last for several hours. Communications circuits passing over the north and/or south poles can be severely interrupted at this point.

Around a day or so later, the shock wave from the solar flare reaches the earth. When this happens, electric currents are induced into the magnetic field of the earth causing large fluctuations in its strength and direction. This is known as a "geomagnetic storm.

There are two types of geomagnetic storm - the type caused generally by a flare is characterised by a sudden increase in the earth's magnetic field, followed by a slow and fluctuating decrease over several days before finally rising to normal levels. A second type of geomagnetic storm, sometimes caused by flares but more often by high speed streams of radiation from coronal holes (holes in the sun's "atmosphere", appears as a slow build-up in the variations in the earth's field. While the first type of storm can last up to a few days, this type can last for up to a week. Both types of storm are accompanied by changes in the structure and density of charged particles in the ionosphere, especially the F-layer at 100-400 km high, called an "ionospheric storm" and causing large dips in the maximum usable frequency - the highest frequency for reliable "skip" communications at any particular time.

While these events may sound like something fairly serious for the earth, they are a regular part of nature. The fluctuations they cause in the earth's magnetic field are only minor, a few percent variation in the total field strength. Not all flares produce such consequences either. Most are not energetic enough or are on the wrong side of the sun to affect the earth.

Ionospheric Structure

Up to now, we have concentrated mainly on the D-region, which is not strictly part of the ionosphere at all, being some 50 kilometres below the level of reflection of radio waves.

The D-region is mainly responsible for preventing HF communications to some extent. During the daylight hours, it is ionised by UV radiation or X-rays from solar events. While ionised, the D-region will absorb frequencies below 10 MHz, making lower frequency HF communications over long distances impossible during daylight hours.

At night, the dense D-region quickly becomes neutralised and ceases to absorb the lower frequencies. It is for this reason that we can make hear long distance signals on the broadvast bands during darkness hours.

As noted in the introduction, the sun emits electromagnetic radiation at all wavelengths. We see only the visible light frequencies as the remainder are absorbed before they reach the earth's surface.

The radiation which does not reach us does not go to waste. It heats the atmosphere and stops us from freezing. Some of it, the UV and EUV radiation, also produces ionisation in the form of free electrons and charged ions. The region where this is most concentrated is called the ionosphere.

The ionosphere is composed of a variety of atmosheric gases whose nature varies according to height. Each different gas is ionised by a different wavelength of solar radiation, so the ionosphere is divided into different layers at different heights.

During the daytime, there are three main layers in the ionosphere: the E layer at around 100-110 km above the earth; the F1 layer at around 200-220 km; and the F2 layer at 250-350 km.

After sunset, the radiation emitted by the sun stops ionising our part of the world and the ionospheric layers begin to decay, or neutralise. The D-region, which absorbed lower frequency signals during the day, disappears. The E layer, also with dense particles, becomes very sparse. The F1 and F2 layers combine to become one night time F layer but do not disappear completely because the decay process is slowed down at this height and strong atmospheric winds can actually blow ionised particles into the F layer from the sunlit side of the world.

Because the F layer is the only layer which never decays completely, it is the one which is relied upon for predictable communications. Other layers are responsible for enhancement of HF and VHF communications, but the F layer is essential for HF.

Like the atmosphere, the ionosphere is not a static layer. It is composed of highs and lows, troughs and bumps, and features winds which blow ionised particles around in the upper layers. Propagation is, therefore, dependent to a large extent on the movements of the ionosphere.

Movement in the ionosphere due to high level winds and other irregularities means that the height of the reflecting layer is far from constant. At lower frequencies like 14 Mhz, variations in reflecting layer height are observed as slow fading of received signals. At higher frequencies like 27 MHz, the height fluctuations have greater effect and may be observed as rapid fading and echoing of signals.

Even the layers themselves are uneven, usually being composed of a central area which is relatively dense with tapering densities above and below this area.

Ionospheric Propagation

For the purposes of this discussion, we can consider "ionospheric" propagation to be any type of propagation which is affected by the ionosphere, whether enhanced or otherwise.

To understand the effect which the ionosphere has on RF signals, it is necessary to go a little deeper into the composition of the atmosphere. Basically, the earth's atmosphere is composed of gases, which themselves have little or no effect on radio waves, unless they are ionised. Once ionised they become, in effect, a conducting medium which, depending on height and density, will either absorb or reflect

radio signals at various frequencies.

There are several factors which affect the behaviour of the ionised layers. For one, the earth's atmosphere is not constant - it is convenient to think of it as a "bubble", but this is incorrect. In fact, the atmosphere extends out thousands of kilometres, becoming progressively thinner as the earth's gravitational effect diminishes.

Different gases are more and less attracted by the gravitational field and so live at different heights. These different gases are affected by different wave-lengths of solar radiation, and so receive differing levels of ionisation.

The D-region, about 50-90 km above the earth, is a dense region which is ionised only during daylight hours. It absorbs low frequency radio waves (below 10 MHz) and prevents them from reaching the reflecting layers at higher altitudes. It disappears when the sun moves to the other side of the earth.

The E-layer is similar to the D-region in that it is, at 100-110 km high, still in a relatively dense part of the atmosphere. The E-layer ionisation also disappears soon after sunset as the ionised particles do not need to travel far to combine with free electrons and recombine into neutral atoms.

The E- layer is the lowest useful layer for HF propagation and usually results in contacts up 2000 kilometres. E-layer ionisation is greatest when the sun is directly overhead, or as close as it comes to overhead in lower latitudes, but is also affected by other factors. Sometimes drifting clouds of electrons with a higher level of ionisation than normal E-layer levels will produce openings on VHF and UHF up to 2000 km and more. These clouds range in size from quite small up to hundreds of kilometres long and usually appear at a slightly higher altitude than the E-layer, around 130 km high.

These clouds are unpredictable and are known as Sporadic-E (Es). Whereas the E-layer reflection height varies according to the frequency of the signals, often passing right through the layer, Sporadic-E clouds have a constant "virtual height" - all signals are reflected at the same height regardless of frequency.

Virtual height of reflection is best understood by visualising the reflection of a signal from the ionosphere as a gental bending action, with higher frequencies piercing further into the layer before refracting back from the surface of the highly charged cloud up to quite high frequencies.

The effect of E-layer and Sporadic-E propagation is noticable on VHF bands where it is generally the only form of "long haul" propagation available. It does, however, also affect HF bands down to 14 MHz and below, although the effects are less noticeable due to mixing with other forms of propagation below 21 MHz.

It is Sporadic-E (Es) which provides many of the current openings on 27 MHz, providing long range double-hop contacts often lasting for several hours. Es is most prominent in the equatorial regions and at lower latitudes in early summer and early winter. It is most common on summer evenings but can occur almost any time.

The F-layer is the one we rely on for most of our HF propagation requirements. At around 200-350 km high, the atmosphere is very thin and recombination of the ionised particles takes much longer. The F-layer, therefore, does not disappear at night.

The effect we notice most in relation to the F-layer is that it does "thin down" once the sun sets. This effect is seen first in that the highest frequency usable up until sunset begins to close or shorten the maximum contact distance. As the night progresses, and ionisation declines, the other high frequency bands also begin to drop out. The F1 and F2 layers merge at sunset to form one single layer and propagation possibilities eventually fade to weak 20 metre signals, with an enhancement of signals below 30 MHz in the absence of the D-region.

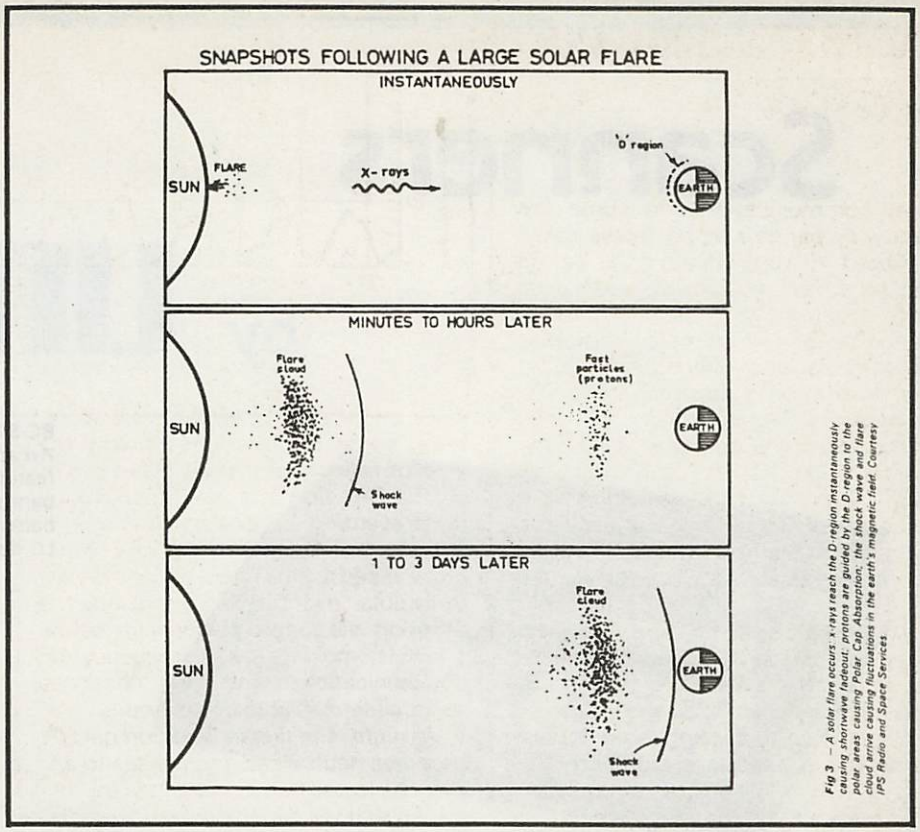

Fig 3 — A solar flare occurs: x-rays reach the D-region instantaneously causing shortwave fadeout; protons are guided by the D-region to the polar areas causing Polar Cap Absorption; the shock wave and flare cloud arrive causing fluctuations in the earth's magnetic field. Courtesy IPS Radio and Space Services.

Once the F1 and F2 layers have combined, usually several hours after sunset, the single night-time F-layer which results settles at a height of about 500 km above the earth. The level of retained ionisation, sometimes boosted by ions blown in from the daylight side of the earth, declines through the night and reaches its lowest level just before sunrise.

Virtual Height

In discussing Sporadic E-layer propagation, mention was made of Virtual Height. To quickly recap, virtual height is the height at which a signal is actually bent to a point where it begins to return earthwards from the ionosphere. This effect is not only related to the E-layer and is important to all forms of ionospheric propagation.

As was noted earlier, the ionospheric layers are not so much a "thin" sheet as a cloud of particles. Each layer begins, travelling vertically through it, as a scattering of particles gradually increasing in density as the centre of the cloud is approached and thinning out again once the centre is passed. For this reason, no ionised layer can be said to have a finite height.

The virtual height of any layer (except Sporadic-E) is dependent on the frequency of the signal being reflected from that layer and the level of ionisation present in the layer. Spectrum users who require reliable "skip" paths need to know within a reasonable toler-

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UNDERSTANDING THE IONOSPHERE

ance what the virtual height is for their operating frequency.

A good example of the need for this information is the Jindalee sky-wave radar system used by the Defence Department in central Australia. The operators at Jindalee need to know exactly where their radar beam is returning to earth and how to make it return at a desired point. To achieve this, Jindalee uses an ionosonde, or ionospheric sounder. This device directs a signal vertically and times the return of the signal to calculate the height at which it was reflected - the virtual height for that frequency.

At lower frequencies, the reflection point will occur lower in the ionised layer. As frequency increases, virtual height also increased until a point is reached when the frequency is too high to be reflected - in other words, it is still deflected, but not enough to be returned to earth. This is the Critical Frequency for whatever layer is being used.

A point that is not appreciated by many of us is that most dedicated HF circuits are operated very near to the critical frequency at any time. The defence forces, for example, have a variety of allocations not unlike the amateur radio service and they always use the allocation which is nearest the critical frequency at any particular time. This is done because the signal strength of the reflected signal improves as you approach critical frequency - this is particularly true on lower frequencies where D-region absorption must be taken into account.

Radiation Angle

We all know that low angle radiation produces better and more consistent DX contacts, but how many of us really know why? Radiation angle is a major factor in how your signal if refracted from the ionosphere.

If you are operating close to the critical frequency for a particular ionised layer, the "humps and bumps" of that layer, mentioned earlier, begin to play a part in how your signal is refracted. For our purposes, however, we will assume a constant layer height.

When a signal is directed vertically into an ionised layer, it is looking at the smallest cross-section of that layer. As the signal is directed more and more obliquely at the layer, the cross-section it "sees" becomes larger. Provided that the ionised layer is a uniform "blanket" around the earth (which it is usually not), the angle of radiation can be lowered, with a corresponding increase in cross-section area in the layer, until your angle is so low that the signal does not reach the horizon before contacting the earth.

Remembering that virtual height is also affected by the "depth" of the ionised layer, a larger cross-section will result in an increase on critical frequency. So the lower your angle of radiation, the higher the maximum frequency for any particular circuit or DX path.

This is why so many big CB stations are able to work DX paths earlier and for a longer period than an "average" CBer can.

Radiation angle also affects the point at which a signal is returned to earth for a given frequency. For a given frequency and a constant layer height (overall, not virtual), a lower angle of radiation will result in a longer Skip Distance for a single hop contact. For example, single hop contacts using the F-layer can be up to 4000 km; the lower E-layer has a maximum skip distance of about 2000 km.

Other Factors

Multiple hop propagation is a product of both the ionospheric refraction and ground reflection at the point where the signal returns to earth. The limits of a multi-hop contact are determined by the level of ionisation of the refracting layer, the ground losses at the point of return, and the radiation angle of the transmitted signal.

In periods of extremely good propagation, like the peak of the sunspot cycle, a signal can be refracted from the ionosphere and reflected back from the earth many times, increasing the maximum contact distance to tens of thousands of kilometres. Each time the sigmal is bounced off the ionosphere, however, signal strength decreases. Each bounce from the ground affects signal strength even more. The result, for hops over very long distances, is generally weak and often distorted signals.

It is also possible, although far from certain, that low angle signals can be "ducted" through the ionosphere for some distance before being refracted back to earth. This effect is seen in tropospheric propagation (in the lower atmosphere rather than the ionosphere), but this is a topic which would require an article of its own.

On occasions, a signal might be refracted off the same layer at more than one point, or from two separate layers, to arrive in the same place. In this situation, the two resulting signals will be at different signal strengths and more than likely out of phase due to the different distances travelled. The result in this case is Fading or QSB, and recieved signal distortion or Selective Fading.

Where fading is present, the out of phase signals can (as in an antenna system) add to or subtract from the strength of either individual signal. A contact affected by multi-pathing through the ionosphere would be characterised by rapidly changing signal strength and often strange signal distortion.

The HF Bands

As the assistance given by the ionosphere is dependent to a large extent on the frequency of operation, it is reasonable to expect that each band is going to have its own characteristics when it comes to propagation. To close this article, we will look briefly at what effect the ionosphere has on each of the most used HF amateur radio bands and 27 MHz CB.

The 160 metre band (1.8-1.9 MHz) is affected greatly during daylight hours by D-region absorption which limits daytime contacts to generally less than 80 kilometres. When the D-region dissipates at sunset, the 160 metre signals can reach the combining F-layers and be propagated around the world, requiring less ionisation than the higher bands to achieve long distance contacts. The 160 metre band improves with lower sunspot activity as the D-region is less intense and dissipates faster, resulting in earlier band openings and later band closings. The main limitation here is atmospheric and electrical noise.

The 80 metre band (3.5-3.7 MHz) is very similar to the 160 metre band in that it is also affected greatly by D-region aborption during daylight hours, when the maximum range is limited to about 350 km under quiet conditions. At night, the 80 metre band opens to DX earlier than 160 metres as the D-region absorption level falls, and contacts can be made over very long distances. Once again, this band tends to improve as the sunspot cycle falls and is also linited at night mainly by atmospheric noise.

The 40 metre band (7.0-7.3 MHz) is, in practice, almost a cross between 20 metres and 80 metres. It is still subject to D-region absorption but not to the extent that the lower bands are and not for as long. Contacts are possible even at midday up to several hundred kilometres. As D-region absorption levels fall in late afternoon, the 40 metre band can produce longer and longer distance contacts. At night, 40 metre signals

can use the F-layer for very long distance contacts. The 40 metre band can also make very good use of the twilight or "Grayline" paths of sunrise and sunset around the world for worldwide DX contacts. 40 metres is still subject to atmospheric noise, but not at the levels of 80 and 160 metres.

The 20 metre band (14.0-14.35 MHz) is the first popular DX band to be free of D-region absorption influences and so can make use of all available ionisation. By varying radiation angle path, the 20 metre operator can maintain worldwide contact around the clock in periods of high sunspot activity. As the sunspot cycle reaches its minima, the 20 metre band becomes less reliable, opening later and closing earlier. At present, 20 metre contacts are limited mainly to daylight hours with peaks around sunrise and sunset. Even at the bottom of the cycle, some part of the world is almost always workable on 20 metres (if there is someone at the other end, of course).

The 15 metre band (21.0-21.350 MHz) is the lowest band to be subject to major E-layer effects and the special factors which make VHF DXing so interesting. In periods of high sunspot activity, this band can produce worldwide contacts at any time of the day or night, but as sunspot activity declines, the band is more and more reliant on higher level daytime ionisation. At present, 15 metres still provides fairly reliable contacts in the equatorial regions and occasional excellent winter Sporadic-E openings. This band can also make use of the brief ionisation caused by meteorites entering the earth's atmosphere (known as Meteor Scatter).

The 10 metre band (28-29.7 MHz) and 11 metres (27 MHz) are, despite the misleading cateogorisation, both VHF bands in characteristic operating factors. They are not unlike 20 metres at the peak of the sunspot cycle, providing regular and extremely good worldwide contacts, but as the sunspot activity declines, contact is mainly reliant at the bottom of the cycle on Sporadic-E clouds and trans-equatorial daylight paths.

Summary

The ionosphere is an essential part of HF and VHF operating for the amateur and CB operator alike. To make the most of what the ionosphere can do for our signals, it is essential that we have some understanding of how it acts and what factors affect our signals.

With a little analysis of what you are hearing an working on the bands, it becomes quite simple to identify the type of propagation you are experiencing. Short range DX contacts (1000-2000 km) are usually low angle E-layer or high angle F-layer single-hop signals. Longer range contacts (2000-4000 km) will be single-hop low angle F-layer signals, double-hop low angle E-layer signals, or double-hop high angle F-layer signals.

Identifying single-hop and double-hop takes some observation skills (multiple-hop contacts are unusual at this stage of the sunspot cycle). The easiest situation in which to prove double-hop is when you are hearing signals from (say) India and Saudi Arabia, when you are in Perth. In this case, both DX stations are about 2500 and 5000 km away respectively and the propagation is almost certain to be F-layer double-hop.

By coming to an understanding on ionospheric propagation, you can make the maximum possible use of the HF bands, regardless of sunspot activity. Try your luck...good DX!

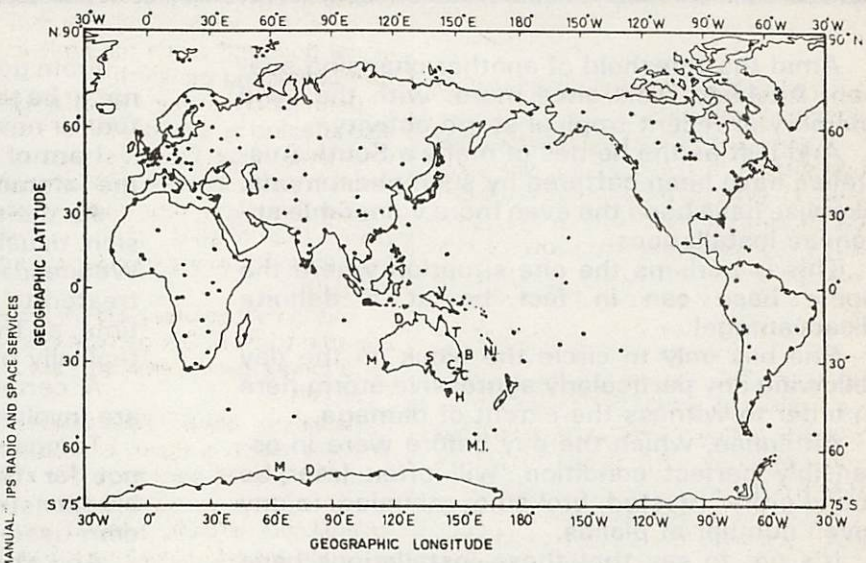
Acknowledgements

Ionospheric Prediction Service, monthly solar geophysical summaries, IPS Radio and Space Services, Darlinghurst, NSW.

Radio Amateurs Handbook 1982, American Radio Relay League, Connecticut, USA.

The Shortwave Propagation Handbook, 1st Edition, CQ magazine technical series.

LOCATIONS OF IONOSPHERIC STATIONS



ILLUSTRATIONS COURTESY "IPS USER TRAINING MANUAL" IPS RADIO AND SPACE SERVICES

Australian Ionospheric Stations

Station	Geog. Lat. (°S)	Geog. Long. (°E)	Period of Operation
Vanimo	2.70	141.30	7/64 – present
Port Moresby	9.40	147.10	5/61 – 7/72
Cocos Is.	12.20	96.80	11/61 – 9/74
Darwin	12.45	130.95	12/82 – present
Townsville	19.30	146.70	6/46 – 1/48, 6/51 – 8/77
Townsville	19.63	146.85	9/77 – present
Tennant Creek	19.65	134.25	5/85 – present
Alice Springs	23.88	133.87	5/85 – present
Brisbane	27.58	152.92	6/43 – present
Norfolk Is.	29.03	167.97	2/64 – present
Watheroo	30.30	115.90	7/35 – 3/59
Woomera	30.80	136.30	5/61 – 12/69
Mundaring	31.98	116.22	4/59 – present
Camden	34.05	150.67	11/80 – 4/85
Salisbury	34.70	138.60	6/60 – 12/73, 1/83 – present
Canberra	35.30	149.00	3/37 – present
Hobart	42.92	147.32	12/45 – present
Macquarie Is.	54.50	159.00	6/50 – 12/58, 11/83 – present
Casey	66.28	110.53	3/69 – 1/75
Wilkes	66.90	110.50	7/57 – 1/69
Mawson	67.60	62.88	2/58 – present
Davis	68.58	77.96	2/85 – present

OVER-BIGHT NEWS FROM SOUTH AUSTRALIA

Amid the threshold of another changing season, Adelaide reels once more, with the vivid memory of recent tropical storm activity.

And just as the homes of many a South Australian have been battered by such phenomena, likewise have been the even more vulnerable antennae installations.

This is perhaps the one situation where the home base can in fact be at a definite disadvantage!

One has only to circle the block on the day following any particularly aggressive storm here in order to witness the extent of damage.

Antennae, which the day before were in ostensibly perfect condition, will often later be found either twisted, broken or mangled, in any given number of places.

It's not to say that these installations have been anchored down incorrectly, but at least for your own sake remember to double check each and every stage of the erection.

Otherwise, you may walk outside next morning to discover the remains of your antenna poking out through the windscreen — of your neighbor's brand new car!

★ ★ ★

How refreshing it must be for the CB importers and distributors of the country to now be able to turn to the everday Australian "jogger," for a diverse and ever-increasing source of new business revenue.

It seemed not six months ago that almost every jogger one saw was wearing a set of stereo headphones.

And while it would not be expedient to state that a total departure from this form of audio stimulation has taken place, it is appropriate to conclude that this medium is in fact fast giving way to that of our own favourite pasttime.

As a result the "jogger" is becoming perhaps the fastest growing new group operator to make use of CB radio over recent years.

His reasons for this are unclear to me.

Perhaps it is the safety aspect, and knowing that life-saving help need only ever be a distress call away.

Or perhaps it is the need to maintain contact with his fellow joggers, who may have either strayed a mile behind or a mile out in front.

But whatever his reasons, one thing is certain.

His equipment is invariably that of a "hand-held" design. With the large number of these radios again falling into the UHF category.

From good news to bad, and it really does pain me to be the harbinger of such particularly unfortunate news.

I am of course referring to those involved in the infamous "Midweek Discussion".

As the name would imply, Midweek-Discussion, usually occurs at some stage throughout a Wednesday or Thursday night, and suburbs treated to local coverage will vary from time to time, as those loyal to the Jolly Roger shift strategically from location to location.

A certain number of regular "participants" are involved.

Things still wouldn't be quite that bad were it not for the announcement of the impending broadcasts being blasted right across the seldom-used channel 35 LSB!

And after being invited over to the frequency in question — for tea and coffee!

One soon learns of group discussions revolving around the need to impart more knowledge on the subject of equipment adjustment and modification.

While this may only trigger indifference in some of you, the initial casualties are already in sight.

Base stations regularly involved openly discuss existing modifications to their own equipment.

The operators must live in the constant sense of false security that Radio Inspectors do not work outside of office hours!

But the biggest trap here however, is the one which has been inadvertently set to snare the unsuspecting newcomer!

For, as one listens to the "Pirates of The Round Table" it becomes abundantly evident that new players are almost continually "falling-in".

If you don't mind falling-in — which could reward you with some rather nasty repercussions — by all means, listen in.

But the "three wise monkeys" will steer well clear of this QSO!

★ ★ ★

For obvious reasons boating has proven to be one of our favored pastimes at the moment with competitions and club acitivities of all shapes and sizes occuring at many different venues throughout the Festival State.

When one examines the craft involved — and in particular the ocean-going yachts and boats — one's attention often turns towards the 27MHz marine radios fitted on board. The fea-

ture which still manages to confuse some people when confronted by marine radio, is the difference between the marine mode selector, and that sported by its land-based SSB counterparts.

As we all know, the mode selector on our standard SSB radios is three positional — AM, LSB and USB — whereas that of the SSB marine variety, is only two positional — "AM" and "Sideband".

The question posed by most people quite simply is, "Well just what is the SSB mode of operation employed by the marine radio".

The answers — in a nutshell, is Upper Side Band. Lower Side Band is simply not available.

It is particularly significant to remember this, if your standard SSB radio has been altered to "marine only" frequencies — to avoid using Lower Side Band altogether.

★ ★ ★

In the November/December issue of CB Action, I made mention of the current skip situation at that time.

Those of you who have monitored the airwaves since then will undoubtably be aware of just how extensive recent changes have been. In fact, to state that skip conditions are now 100 percent on what they were then would be an understatement!

We are now progressing through an exciting new phase, one where both national and international skip can not only occur, but remain for quite some period of time on almost any given day!

The only drawback that I have overheard from any English-speaking operators so far, is the problem encountered when attempting to copy those stations from foreign-speaking areas.

Some of them can also speak English, but a significant number cannot.

And indeed, it would be fair to state that the situation is fast approaching the point where those operators capable of speaking other languages will find themselves in a far more advantageous position.

The main affliction to our current skip phase however, is its method of departure.

Rather than fading out, as is usually the case, you will often find that a period of exceptional skip will be completely overcome by the sudden descent of a particularly high level of atmospheric interference.

Listen out for it — and enjoy the skip while it lasts.

Hands up those of you who have heard of our new "marine frequency".

That's right, our new marine frequency?

From what I can gather it is 27.375MHz.

Strange how I can tune to this frequency on my standard CB isn't it! And, you will probably find that without too much trouble, your own radio will tune in also.

On top of this you will also find that the preferred mode of transmission is Lower Side Band!

That is even more strange when you consider the statement from two paragraphs earlier, that LSB is not even available.

It would appear that an alarming number of the boating fraternity, have adopted this as the new "marine channel".

As one scans through the frequencies, one still often stop in absolute amazement at the nature of conversation taking place on this channel.

The stations involved could almost be forgiven, were it not for the extent of such widespread havoc and confusion being caused by them.

Sitting right out on the ocean, they appear to enjoy chairing QSOs between CBers of the land.

No doubt the absolutely mind-boggling range of the SSB transmission across water, and its attraction to these people — is partly to blame.

The most annoying aspect which I have found yet is the aggression amongst we operators of the land when attempting — usually unsuccessfully — to make the trip back to these boats.

I believe that I echo DoTAC's thoughts precisely when I say that we can almost be certain, never to see 27.375MHz become a legal Australian marine frequency!

★ ★ ★

I have a feeling that in the previous issue I neglected to wish you all a Merry Christmas and Happy New Year.

It may be a little late for a Merry Christmas, but I certainly do hope that the year ahead will be a prosperous and safe one for all of you.

Also, I take the opportunity now to thank you all for your letters and feed-backs on the many valuable subjects about which you have written.

Keep those letters coming, as I will be in search of much new material throughout 1988.

And for those of you whose clubs have certain activities lined-up for the coming year — send your details in to me with plenty of time to spare. Our deadlines are always well in advance!

Send your queries or information to: Dwayne Penny, c/o "Over-Bight", GPO Box 1607, Adelaide, SA 5001.

UHF NEWS

By GREG TOWELLS

I have had a number of letters following the last issue, detailing the number of repeaters spread along the mid-north coast and inland area. UHFers in the Walcha district have the pleasure of long distance communications via the new channel 8/38 repeater. Operation actually commenced in July 1987, and is sponsored by WALGRAZ (Walcha Area landholders and Graziers Repeater Association). The repeater itself is located some 50 kilometres south-east of Walcha at an altitude of around 1600 metres above sea level.

The equipment consists of a Philips 828 modified, an Imark ident/controller board (slightly modified!!), a Radio Frequency Systems diplexer unit with three cavities on the transmit side and four cavities on the receive side. All this is powered by a solar panel and battery. The interesting side to this repeater is that it was financed solely by donations from the local community and a few from outside the area.

Members of WALGRAZ were a little worried that if a local repeater was set up by a business or company, it might be easy for the business to fold or move out of town, and so down would come the repeater. Congratulations to all concerned on your efforts.

The same few writers also notified me of a few other new repeaters in their general area. These are: channel 1/31 at Wingham; channel 1 at Ebor (north-east of Armidale); channel 2/32 Port Macquarie; 3/33 at Taree, and the testing for re-installation of channel 1/31 at Tamworth. All the above repeaters are in NSW. 1/31 at Wingham commenced operation in July 87, and 1/31 Ebor became operational in November 87.

The writer who supplied the above repeater info also questioned why the subject repeaters had been in operation for so long and yet had not scored a mention in this column or the repeater list. The reason is simple people. If no-one can be bothered to let me know or keep me up to date with repeater and VHF happenings, then it doesn't appear in print. A score of operators, both local and passing through the area, must have noticed or known of these repeaters before now, yet not one let me know about it, until the welcome letter for last issue from Rosanna, Vic.

★ ★ ★

Going back to the first item, notice that more new repeaters have been allocated channel 1/31. Just quickly flip over to the repeater list, and note the proliferation of 1/31 allocations around the country. In most states, NSW particularly, 1/31 repeaters outnumber any other allocated channel.

Why is this happening?

More to the point, what problems is this creating?

Apart from hammering home the point that the number of channels allocated, and therefore repeater channels, is hopelessly inadequate for the Australian UHF CB network, is the fact that many 1/31s are being placed much too close to each other, with the result that one user ties up three or more repeaters with one button push.

All of the blame for this lousy state of affairs can be laid squarely at the feet of the DOTAC, for their lack of forward planning and the low priority placed on the VHF CB band.

This is despite such a small area of spectrum generating a huge amount of revenue for the Government, and serving so many users.

Problems are beginning to be felt from this overload at the bottom end of the repeater channels, a problem that must be addressed soon. DOTAC needs to stop and thrash out a workable nation-wide plan for present and future repeater allocations, before the situation becomes unworkable. It seems that no guidelines are utilised by DOTAC when allocating a repeater to a channel, other than 'that channel sounds good, that'll do, now back to our day long coffee break!'. Maybe it is time for repeater sponsors to write and register their protest at the 'anything goes' method of channel allocation of DOTAC, along with suggestions, no matter how small.

★ ★ ★

Hatadi are set to release a new UHF handheld onto the market. Complimenting a long list of UHF equipment from Hatadi, the new radio will be called the Royce AUS-200. Reputed to have extremely good receiver section, the awaited unit should be available around the traps within a few months (at time of writing). One wonders though, how this new one is to fit in with the new 'Sabre' unit announced recently.

If nothing else, there will be no lack of variety for buyers of UHF handhelds in the near future!

★ ★ ★

Following the very successful Sydney Radio Field Days, there is a rumour floating around that a group of UHFers are interested in organising Sydney's first 'UHF Expo' (but probably without the huge tents or helicopters). The focus of the day will be on UHF CB, possibly scanners and maybe some VHF/UHF ham gear. From what I've heard, it is to be a very professional and well organised event — even with exhibits from importers and retailers, displays and more. No location or date have yet been set, but around May or June, at a decent undercover venue around Parramatta or Ryde, seem to be the favourite.

★ ★ ★

That is all for this issue. Please, if you hear of anything UHF in your area, or a repeater that is not on the list, let me know about it. Don't assume the locals or someone else has written in about it, make the effort yourself and in turn, let all Australia's UHFers know about what's happening where. The address is PO Box 358, Granville, NSW, 2142.

SCANNING AROUND

By JOHN WILLMOTT

A small gremlin managed to work its way into my last column and cause chaos and confusion in the listing of new Melbourne Fire Brigade frequencies.

You're right, channel 10 should have been 469.900 MHz.

* * * * * * * *

While on the subject of Fire Brigade frequencies, Queensland Fire Services have begun a process of slow change from VHF to UHF.

The Brisbane Fire Service now operates on:

Ch 1
466.850/457.350 South side
Ch 2
466.875/457.425 Central
Ch 3
467.325/457.825 North side
Ch 4
466.875/457.375 Fireground
Ch 5
466.975/457.475 Fireground

Call sign for the Brisbane Service is VZ4ME, not VL4ZO as shown in DOTAC records.

Later this year the Ipswich Brigade is expected to go to 467.350/457.850 with the callsign VZ4IP.

Sunshine Coast & Toowoomba will change to 467.800/458.300.

Gold Coast & Logan is expected to go to 467.575/458.075, while Caboolture will move to 467.675/458.175.

* * * * * * * *

Fire Brigades in Queensland are going through a process of change, one of those changes being the removal of individual Brigade shoulder flashes and cap badges which are being replaced with 'Queensland Fire Services' markings.

The State's Fire Services Committee is in the process of requiring all Brigades to use a standardised system of radio 'K' codes - similar to the West Australian and South Australian codes.

At the moment it is obvious that the system has been designed by a committee - it's inadequate and, in parts, anomalous.

The Brisbane Brigade is the only one using the full code at present and I wouldn't be surprised if that Brigade seeks changes and additions to the basic system.

* * * * * * * *

Still in Queensland, the Queensland Ambulance Transport Board (Q.A.T.B.) continues to operate its vehicles in a sickly mustard colour which makes them all but invisible in many lighting/weather conditions.

The Brisbane Division soldiers on with VHF-Lo frequencies using the call sign VL4AS and less than perfect radio procedures.

The VL4AS frequencies are:

79.840	Brisbane North
79.870	Brisbane North
79.750	Brisbane South
79.960	Brisbane Metro.

Q.A.T.B. Country Divisions operate on 82.980.

* * * * * * * *

The Queensland Police (VKR) may have updated their communications to complete UHF operation, and their recording system to a magnificent, quickly accessible computer system, but they continue to be fairly basic (and unofficial) in their use of one particular radio code.

Where else but Queensland would a drunk be characterised on air as 'FOP' - Full of Piss!

VKR codes for 'Disturbances' are a reflection of the State's sometimes turbulent political history in recent times:

311 Disturbance
312 Domestic
313 Industrial Disturbance
314 Political Disturbance
315 Street Disturbance

* * * * * * * *

During the next twelve to eighteen months we can expect to see a number of changes in the use of the 64-channel UHF allocation by various State Police Forces.

'Voting' has already been introduced by VKC in Melbourne, and is slowly being introduced by VKG, Sydney.

Each voting channel scans a number of pre-determined frequencies and selects the strongest signal to lock onto.

If the mobile comes into range of a stronger signal it automatically changes to that frequency.

VKC's voting channels are:

65 voting on Chs. 13, 15 & 63
66 voting on Chs. 40, 41 & 62
67 voting on Chs. 55, 56 & 60
68 voting on Chs. 17, 19, 21 & 44
69 voting on Chs. 42, 59 & 61
70 voting on Chs. 27 & 34

* * * * * * * *

The massive upgrading of S.A. Country Fire Services' communications in the last two or three years has really paid dividends.

While writing this column I have been listening to individual brigades and large task forces working at fires all around the State.

No communications problems!

Good listening!

All mail to:

SCANNING AROUND
G P O BOX 1200
ADELAIDE 5001
SOUTH AUSTRALIA

40'S A JOLLY GOOD FELLOW

Do you know, in the short ten year history of Australian UHF CB, we've had thirty-two different 477 MHz radios. Hard to imagine, but I carefully counted them all and there you have it — thirty two rigs! That's more than three per year, or one every four months.

Some of these were only with us for a mercifully short period of time, but I'll resist the temptation to name them — I don't like to speak ill of the dead.

And, at the other end of the scale, a few of the real classics have become perennial favourites, the same model selling for year after year because — well, maybe the competition hadn't caught up yet, or perhaps it wasn't worth changing the radio at the time, or simply because (as the man said) 'When you're on a good thing . . .'

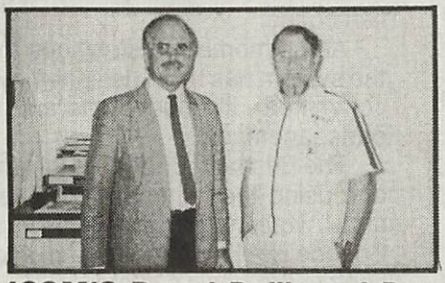
No-one could argue that the IC-40 isn't a 'good thing'. Certainly not the thousands of UHFers who've bought them and still give them a solid work-out every day.

I've seen IC-40s in all manner of places. Clipped onto a farmer's thick hide belt or hanging from the saddle-pack of his horse; dangling into the void beneath a hang-glider or perched in the cabin of a sail-plane or ultra-light; in skifields of snow and grass, in boats and courier vans, and worn by security guards, the Salvation Army and local CBers alike.

Why, my very first UHF handheld was the 40's bastard brother, the modified IC-4E.

So here we are, in 1988, and the IC-40 is about to enter its fourth year of production. Not a bad effort, considering that this record is only bested by the fondly-remembered Philips FM320 UHF mobile.

The IC-40 has a lot in common with the FM320. They were firsts — one mobile, one handheld. Preceded by models with fewer channels, maybe, but both radios were proof that 477 MHz had come of age, and the potential UHFer deserved more than a transceiver with a second-hand design.



ICOM'S Darryl Dellit and Duncan Baxter — pleased with the success of the IC-40.

In some instances, the IC-40 had as unlikely a future as the FM320. Being a 'first' led to as much uncertainty and skepticism from the industry and users as it did hopeful planning from the manufacturers.

After all, in 1982 only an optimist could have predicted that a fully-synthesized 477 MHz handheld would sell for $450. Yet a year later, the first (and in my mind superior) modified IC-4E was offered by Powerband Communications for just that price.

And two years following, we saw the long-awaited release of the IC-40, which gained the approval of both the DOC and the UHF enthusiasts at large.

Darryl Dellit, General Manager of Icom Australia, admitted that their first reaction to the modified 4E was one of surprise. "When the IC-4E started to get modified, the Department of Communications spoke to us about it, thinking we had something to do with it, which of course we didn't."

In fact, the idea had never really been entertained before. After all, Icom was the progressive and innovative amateur radio company, and had successfully ventured into marine and commercial radio. Why on earth would Icom make a CB radio?

"Our approach is that we are a high-tech company, with a lot of attention to detail and quality," Darryl offered in reply. "The amateur equipment, for example, is to a large degree handmade. Whereas CB radio had the image, particularly in the past, of being the cheapest item you could get onto the market. And that is essentially how it was sold. Even some of the early UHF CB handhelds were a total disaster.

"But this converted IC-4E seemed to be becoming very widespread and very popular, so we began to look at the idea of a 477 MHz handheld, designed and built by Icom, with DOC approval of course."

The first step was to carry out market research, and Icom approached each of their dealers with a potential interest in that field.

"There was a very positive response to the idea, which was necessary before submitting it to Icom in Japan — because we have to justify to them, on an economical basis, that it is viable.

"Then it followed our usual procedure — Kiyoshi Fukushima, our Managing Director, presented all the facts to the factory in Japan, Icom then evaluated the concept and put together a project team, and that team developed the IC-40 from that point onwards."

To gain an appreciation of the uniqueness of the radio, you have to remember that the IC-40 is only made for Australia. In that respect it is unlike any other Icom unit — such as their amateur, marine and commercial equipment, all made for the larger world market.

It was typical of this individuality — of both the radio and the UHF CBRS itself — that the appeal of the IC-40 ranged even further than its makers had predicted.

"Some of the first people to come to us were stockmen," Darryl reflected, "and I wasn't aware of how well UHF CB could work for them. But with a collinear back at the base they could work their entire property.

"We've also found the IC-40 is getting into areas like hang gliding and ballooning," says Duncan Baxter, one of the original driving forces behind Icom Australia and presently their Sales Manager.

"Volunteer groups like the CFA and the SES use some. Also, there are a lot of people using it as a back-up for a main radio service, like a secondary channel, to avoid tying up the main frequency."

On a recent trip to Victoria's Mt Hotham, ski enthusiast Darryl discovered that the Mt Hotham Ski School use IC-40s.

"They've got a great system there, IC-40s and speaker-mikes tucked under the ski-jackets and it works beautifully. There's a large hill between two of the ski areas, but they can still talk to each other because they use a 13 element yagi to bounce the signal off another hill to the side and they get through crystal clear."

Of course, one of the biggest users of the UHF CB — and therefore the IC-40 — is the business community.

"We find many small businesses, who on the odd occasion need two-way radio, choosing the IC-40," said Duncan.

"There's also the fact that it can be used as a 'mini-mobile' with the right equipment — speaker-mike, mobile mount cradle, and perhaps a DC converter. So they can make a handheld into a mobile very quickly and easily, but have flexibility of taking it out of the car."

Another advantage is the SC-40 module, a five-tone selcall board which appeals to commercials who don't want to listen to chatter all day long. Even three years after its release the IC-40 is still the only UHF CB handheld with a selective calling facililty.

The sheer variety of accessories has also been a strong point of the IC-40. Duncan claims the most popular of these to be battery packs, both the high-power BP5A and the extended-use BP8.

"These are also very flexible, as they can be charged in three ways — with the BC36 rapid pulse-charge base, with a standard 240V wall charger or using a DC charger from a vehicle's cigarette lighter socket."

At the meeting's end, Duncan showed me tow of Icom's latest releases. First was the IC-900A, a sophisticated multi-band mobile transceiver with a remote control head linked by fibre-optics to a module interface capable of convering any combination of HF/VHF/UHF amateur bands.

The second was a truly pocket-sized UHF amateur handheld, the IC- 4AT. The 'Micro 4' features key-pad frequency entry, DTMF, ten memory channels, LCD read-out, low-current 'standby' mode and CTCSS sub-audible tone control.

A final question — what does the future hold for Icom and UHF CB? Can we expect a new handheld, or possibly a sophisticated mobile 477 MHz rig from Icom?

"Icom's forte is, of course, handhelds which stand out above the rest of the market," says Darryl. "We won't go into mobiles, there are enough people supplying good mobile UHF radios at the present. If anything, I would guess — and I really am only guessing — we might move in the direction of the new Micro handheld series, such as the 70 cm amateur Micro 4."

I may be an optimist — but roll on, the Micro 40!

ICOM IN BRIEF
Founded 1954, by current President Tokuzo Inoue. Products: Communications equipment for amateur, marine, business & UHF CBRS markets. Headquarters: Osaka, Japan. Offices — Japan, Australia, Canada, France, U.S.A. and West Germany. Locally distributed by: Icom Australia, 7 Duke St., Windsor, Vic., 3181. Ph (03) 529 7582.

Now you don't have to be bolted to your vehicle to keep in touch.

The ICOM IC-40 is a compact 40 channel UHF CRS field proven hand held.

It has standard 2 watts output and optional 3 watts output power which is the same as many mobile radios. It is also available with optional 5-tone selective calling.

And is perfect for jobs on the land, water or business where you want to keep in touch with base without keeping in touch with your vehicle.

For all details see your ICOM dealer or call ICOM on Melbourne (03) 529 7582 or (008) 33 8915 from elsewhere in Australia.

ICOM

Henderson Merrick DiStefano / IC 465

CB Action Club Register

NSW

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AA UHF CB Radio Group, 13 The Circle Narraweena NSW 2099.
ACRM (Sydney Divn) PO Box 13A Fairfield NSW
ACRM (New England Divn) PO Box W33 West Tamworth NSW 2340
ACRM (Nowra Divn) PO Box 696 Nowra NSW 2541
Amateur and Citizens Radio Club, 2 Griffith Ave, Roseville NSW 2069.
Argonauts Radio Contact Club, C/- PO Railway Town NSW 2880.
Barrenjoey Peninsula Area CB Radio Club, PO Box 25, Avalon NSW 2107.
Beef Country Radio & Recreation Club, PO Box 852, Casino NSW 2470.
Berowra CB Radio Club, PO Box 2, Berowra NSW 2081.
Blue Mountains Repeater Association, PO Box 358, Granville NSW 2142.
Bravo Victor Radio Club C/- 11 Canning St Bega NSW 2550.
BWA Boprowa CB Club, PO Box 34 Boorowa NSW 2586
CB Callbook Club of Licensed Operators, 18 Malvina Parade, Gorokan, NSW 2263.
Central Western Citizens Band Community Radio Club, PO Box 628 Orange NSW 2800.
Charlie Tango CB Radio Group, PO Box 295 Dee Why NSW 2099
CREST Citizens Radio Emergency Service Teams NSW C/- 9 Davies St. Dubbo NSW 2830
Disabled Water Sports Charity No 2023, C/- PO Saratoga NSW 2250.
Echo Victor Whiskey Radio Club of Newcastle, 6 Cheryl Close, Elermore Vale, NSW 2287.
Eleven Mike, PO Box 357, Singleton NSW 2330.
Eureka Base CB Radio Club Friends of Brain Injured Children, PO Box 12, Blacksmiths 2281.
G.L.C. Eastern Bases CB Radio Club, PO Box 767, Gosford NSW 2250.
FM CB Radio Owners Unite, PO Box 40, Gladesville, NSW 2111.
Gladiator CB Radio Group 9 Ashland St. Alstonville NSW 2477
Gosford Citizens Radio Club, PO Box 447, Gosford NSW 2250.
Greater Cessnock City Radio Association, 48 Mayfield St, Cessnock NSW 2325.
Hill Billy Radio Club PO Box 683 Taree NSW 2430
Just Enough Radio Club PO Box 2799 Blayney NSW 2799.
Lakemba Area Radio Club PO Box 508 Kogarah 2217
Leisure Coast CB Radio Club, PO Box 1127, Wollongong, NSW 2500.
MacLeay Valley CB Radio Club PO Box 34, Kempsey NSW 2440.
Mallee Radio Australia CB Radio Club, PO Box 920, Griffith NSW 2680.
Metropolitan Radio Club, PO Box C31 Clarence St. Sydney NSW 2000.
Metropolitan West Radio Club, 74 Van Diemen Ave, Willmot NSW 2770.
Mike India CB Radio Club, PO Box 778, Campbelltown NSW 2560.
Moonlighters District Radio Club, PO Box 13, Hawks Nest NSW 2324.
National Dingo Association C/- Smithville via Broken Hill NSW 2880.
Newcastle Cyclist CB Club, 3 Hill St, Wallsend NSW 2287.
North Shore Radio Club PO Box 236 Pymble NSW 2073.
November Alpha Club, PO Box 412, Narrandera NSW 2700.
Overland Radio Club Inc (Sydney Branch), PO Box 295, Dee Why Sydney NSW 2099.
Parkes Citizens Band Radio Club PO Box 525 Parkes NSW 2870.
Pathfinder CB Social Club of Aust. Queanbeyan/Canberra Div PO Box 771, Queanbeyan NSW 2620.
Pathfinder Radio Group NSW, PO Box 167, St Mary's NSW 2750.
Pioneer CB Radio and Social Club, PO Box 34, Boolaroo NSW 2284.
Radio Rescue Inc. (NSW) Branch Operations Director, Galong NSW 2585.
REACT NSW State Team, 476 Parkinson St, Albury, NSW 2640.
REACT 4WD Rescue Service, 476 Parkinson St, Albury NSW 2640.
Riverina Radio CB Social Club, 29 Parkinson Cres, Griffith NSW 2680.
Rough As Guts Radio (RAG), C/- PO Box 129 Wamberal NSW 2250
Skydivers CB Radio Club Unit 5/3 Washington Avenue, Riverwood NSW 2210.
Shallow Water Sierra Whisky Club, PO Box 857, Nowra NSW 2540.
Sydney Radio Group, PO Box 184, Northbridge NSW 2063.
Tango Romeo Echo CB Club, PO BOx 688, Taree NSW 2430.
Tango-X-ray Side-band Radio Club of Australia, PO Box 664, Castle Hill NSW 2154.
The Beam Club of Australia, PO Box 633, Brookvale NSW 2100.
The TT UHF CB Radio Club, c/o PO Box C31 Clarence St. Sydney NSW 2000.
Titan Radio Group, PO Box 195 Blacktown NSW 2148.
United Citizen Band Radio Clubs of NSW, PO Box 104, Strathfield, NSW 2135.
Viking CB Radio Club PO Box 133 Miller NSW 2168.
Western Radio Club PO Box 666 Blacktown NSW 2148.
Whisky Lima Radio Club PO Box 139 Revesby NSW 2212.
Williams Valley Radio Club PO Box 50 Dungong NSW 2420.
Wombat CB Radio Club, PO Box 348, Lavington NSW 2641.
YMCA-New England Emergency Radio Unit, PO Box 681 Armidale 2350.

WA

ACRM Australian Citizen Radio Monitors WA Inc., PO Cox 141 Capel WA 6271.
ACRM WA South West Division 68 Rogers Avenue, Katanning 6317.
Albany Commns Group 65 Hassells St. Elleker Albany WA 6330.
Alpha Whiskey Alpha Radio Club 180 Bay View Dve Little Grove Albany WA 6330.
Australian Radio Group, PO Box 1118, Fremantle 6160.
Aust Radio Group, PO Box 429, Merredin WA 6415.
Black Swans CQDX Club of WA, PO Box 220, Kwinana WA 6167.
Black Swans CQDX Club of WA PO Box 231 Kwinana 6167
Bunbury Radio Club Inc, PO Box 31, Bunbury WA 6230.
Canning River Radio Club, 53 Parkside Ave, Mt Pleasant WA 6153.
Carnarvon Radio Club, PO Box 294, Carnarvon WA 6701.
CREST WA (Inc) PO Box 1200, East Victoria Park WA 6101.
Echo Radio CB Club, PO Box 519, Claremont, WA 6010.
Freedom Group Perth, PO Box 9, Palmyra WA 6157.
Gascoyne CB Club PO Box 947 Carnarvon WA 6701.
Golden Hawk CB Radio Club of Australia, PO Box 1183, Bunbury WA 6230.
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Quokka Radio Club, PO Box 12 Rockingham WA 6168.
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Scorpion Intnl CB Radio Club of WA PO Box 51 Rockingham WA 6168.
Southern River Radio Group PO Box 38 Kelmscott WA 6111
The Mango Club, PO Box 241, Hillarys WA 6025.
The UHF Assn of WA Inc, PO Box 176, Hillarys WA 6025.
Titan Radio Group, PO Box 210, Kwinana WA 6167.
Wanneroo Citizens Radio Emergency Services Teams WA Inc, PO Box 402, Wanneroo WA 6065.
West Coast Radio Club PO Box 270 Hillarys 6025
Western Radio Club, PO Box 484, Collie WA 6225.
Wild Geese International Combat Veterans Radio Communications Group, PO Box 673, Cannington WA 6107.
York Repeater Club Box 40 Beverley 6304

QLD

ACRIM QLD Inc, PO Box 213, Everton Park Brisbane Qld 4053.
Alpha Whiskey, PO Box 936, Bundaberg, Qld 4670.
Alpha Whiskey Club, 49 Whylie St. Thabeban Bundaberg Qld 4670.
Australian Bulldog Club, 37 Sunderland St, Garbutt Townsville Qld 4814.
Australian International CB Social Club, PO Box 150, Inala Qld 4077.
Brisbane Volunteer Emergency Monitoring Service, 22 Reis St., Buranda 4012.
Bunya Radio Club, PO Box 575, Kingaroy Qld 4610.
CB Callbook Club of Licensed Operators PO Box 593 Palm Beach 4221.
Color Postcard Express International QSL and Postcard Swap Club (Australian Rep), PO Box 111, Oakey Qld 4401.
Delta United Radio Group Ltd, 3 Bedarra St, Inala 4077.
Dirty Water CB Club of Australia, PO Box 262, Bufimba Qld 4170.
Hervey Bay and District CB Club, PO Box 382, Pialba Qld 4655.
Inlanders CB Radio Club of Australia, PO Box 5712, Rockhampton Mail Centre Qld 4702.
KKK 106 Radio Club, PO Box 6547, Goldcoast Mail Centre Qld 4217.
Leichardt CB Radio Club, PO Box 941, Mt Isa Qld 4825.
Musketeer Club, PO Box 135, Ferny Grove 4055.
National Dingo Association, PO Box 34 Finch Hatton Qld 4756
Radio Rescue Inc (Qld Bch) State President 2 Widt St Moura 4718
REACT QLD State Team, Box 5227, Cairns Mail Centre Nth Qld 4871.
Rockhampton Citizens Band Radio Club, PO Box 5230, Rockhampton Mail Centre 4702.
Rum City CB Club PO Box 229 Qld 4670
Sunshine Coast CB Radio Club, PO Box 379, Maroochydore, Qld 4558.
Southern Cross Radio Club Inc., PO Box 529, Darra, Qld 4076.
The United Pheasant Pluckers, South Calliope St, Springsure 4722.
Toowoomba District CB Club, PO Box 5387, Toowoomba Qld 4350.
Toowoomba Mountain CB Club, PO Box 5299, Toowoomba Qld 4350

CB Action Club Register

Tru Blue Radio PO Box 379 Blackwater 4717
Ultra-lite Radio Club of Australia, PO Box 191, Carina 4152.
Unicorn Radio of Australia PO Box 787 Woodridge Qld 4114.
Volunteer Emergency Monitors Caboolture, 96 Bishop St., Beachmere 4510.
Zodiac International DX Radio of Australia, PO Box 400, Zillmere, Qld 4034.
Zulu Alpha Foxtrot CB Radio Club, PO Box 5122, Rockhampton Mail Centre Qld 4701.

SA

Australian Association of Citizens Band Radio Operators Inc., PO Box 146 Plympton 5038.
Australian Citizen Radio Monitors SA Inc (ACRM), PO Box 83, Prospect SA 5082.
Australian Independent Monitoring Service Inc, SA Division, PO Box 86, Stepney SA 5069.
Buccaneer Radio Club, PO Box 239 Kilkenny 5009.
Charlie X-Ray Citizen's Band Radio Club Inc., PO Box 824, Salisbury SA 5108.
Christie's Beach Citizens Band Radio Club, PO Box 22, Moana SA 5169.
Coonawarra CB Radio Club, 2 Eyre St, Barmera SA 5345.
Eagle Radio Group, PO Box 302, Morphett Vale SA 5162.
Eureka Base CB Radio Club Friends of Brain Injured Children PO Box 633, Elizabeth 5112.
Hahndorf Radio Stations (HRS), PO Box 44, Hahndorf 5245.
I Hate Washing Dishes, PO Box 210, McLaren Vale SA 5171.
Kilo Bravo Radio Club, PO Box 317, Brighton-Le-Sands 2216.
Linear Radio Club, PO Box 70, Elizabeth Fields, SA 5113.
Modbury West QSL Club for Members of the Scout Association, PO Box 36 Modbury North SA 5092
Overland Radio Club Inc., PO Box 1010 Murray Bridge 5253.
REACT Marine Rescue Service, 1 Flavel Terrace, Murray Bridge, SA 5253.
REACT SA State Team, PO Box 1321, Murray Bridge 5253.
Riverland CB Club, PO Box 582, Loxton 5333.
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VIC

Alpha Hotel CB Radio Club, 6-14 Acacia Ave, Ararat 3377.
Australian Radio Social Club, PO Box 222, Seaford Vic 3198.
A1 U-Beaut Okker Radio Club of Aust. PO Box 150 Moe Vic 3840.
Baker Sugar Baker Social Radio Club, 34 Rodney St., Bendigo 3550.
Bell Bird Club of Vic, C/- PO Box 39, St Andrews Vic 3761.
Bendigo Radio CB and Social Club Inc. PO Box 862, Bendigo, Vic. 3550.
Bendigo Sideband Radio Club Inc., PO Box 277, Bendigo 3550.
Bingo Cheerio Group, PO Box 1292 Richmond North 3121.
Bravo Bravo CB Club,7 Yanakie St., Morwell 3840.
Bravo Mike Radio Club, PO Box 94, Melton Vic 3337.
Campaspe Radio/QSL Group 120 Mollison St Kyneton 3444
Carrajung UHF CB Repeater Assn, PO Box 55, Port Albert Vic 3971.
Cobram & District Coffee Club, PO Box 478, Cobram 3644.
De La Salle College UHF CB Class, 1818 High St., Malvern 3144.
Diamond Valley Vigilantes C/o PO Box 357 Greensborough 3088
Falcon Radio, PO Box 104, Port Fairy 3284.
Fosters CB Radio Club, PO Box 229, Cranbourne Vic 3977.
Fosters CB Radio Club (NSW Branch), PO Box 325, Fairfield 2165.
Gippsland CREST, PO Box 460, Warragul 3820.
Gippsland Emergency Monitoring Service (Inc) PO Box 983 Morwell Vic 3840.
Gippsland Repeater Assocn, PO Box 77, Sale Vic 3850.
Goulburn Murray Repeater Group Inc, PO Box 250 Euroa 3666.
Grampians BC Club, C/- J. Delley, 1 Johnston St, Stawell Vic 3380.
Grampians CB Radio Club PO Box 41 Stawell 3380
Horsham CB Club, PO Box 730, Horsham Vic 3400.
International Crusade Assocn, PO Box 2616W, GPO Melbourne Vic 3001.
Jack Daniels Whisky Club PO Box 278 Preston Vic 3072.
Kilowatt Radio Club of Australia, PO Box 428, Mt Eliza Vic 3930.
Mary Delta 27 MHz Radio Club, 31 Rosebud Pde, Rosebud Vic 3939.
Mike India CB Radio Club, PO Box 1499, Mildura Vic 3500.
Mongrel Radio Social Club, 43 Bannister St. Nth Bendigo 3550.
Nightowl Radio Club of Victoria, PO Box 97, Huntingdale Vic 3166.
Omega Radio Club of Victoria, PO Box 50, Chadstone Centre Vic 3148.
Perfume City Pirate Radio Club, PO Box 10, Pearcedale 3912.
Queensland Blue Heeler Social Radio Club, PO Box 649 Geelong Vic 3220.
Radio Charity Group, Latrobe Valley, PO Box 237, Churchill Vic 3842.
Radio Emergency Associated Communications Team, 113 Blair St, Portland 3303.
Radio Enthusiasts Club of the Blind, PO Box 219, Glenroy Vic 3046.
Radio Rescue Inc. (Vic) Regional Co-ordinator, 117 Bruce Rd, Safety Beach 3936.
REACT VIC State Team, 5 Damian Crt, Wodonga Vic 3690.
REACT 4WD Rescue Service, 5 Damian Crt, Wodonga 3690.
Region Dandenong CB Radio and Social Club, PO Box 57, Doveton Vic 3177.
Ringwood & District Radio & Social Club, PO Box 496, Croydon 3136.
Riviera Radio Club of Australia, C/- P. Robertson, 19 Taylor St, Bairnsdale Vic 3875.
Royal Volunteer Coastal Patrol, PO Box 182 Brighton Vic 3186.
Ethnic Ether (Double EE) Assocn, 31 Bride St Hampton Park Vic. 3976.
Scramblers CB Radio Club of Vic., PO Box 103, Braybrook, Vic. 3019.
Sierra X-Ray Radio Group, 18 Crinigan Rd, Morwell 3840.
Southern Cross Radio Group, PO Box 365, Leongatha Vic 3953.
Sovereign Radio Club, PO Box 21, Sebastapol, Ballarat Vic 3356.
Tango Victor Radio Club, PO Box 3, Timboon Vic 3268.
The Black Panther DXing Social Club, PO Box 527 Bendigo Vic 3550.
The Kelly Radio Group Victoria, PO Box 39 St. Andrews Vic 3761.
The Thunder Down Under Club, PO Box 1149, Hoppers Crossing 3030.
Ultra-Hi Club, 8 Peter St, Bell Post Hill Vic 3215.
Victorian Scorpion Radio Club (South Gippsland), 39 Quigley St, Morwell Vic 3840.
Victorian Sideband Pirates 52-Xray Group, c/o PO Box 297, Moorabbin 3189.
Victoria UHF Radio Club Inc, PO Box 407 Mount Waverley Vic 3149.
Whisky Bravo Social and Charity CB Radio Club Inc., PO Box 614 Moe Vix 3825.
28 Whiskey Group Social Club Base of Vic, PO Box 755 Moe Vic 3825.

TAS

ACRM (Tasmania Divn) C/o Post Office Jericho, 7030
Blue Lagoon Social Radio Club, 9 Walker St. Ulverstone Tas. 7315.
FIB UHF Club, PO Box 18, Ridgley Tas 7321.
LT Club Incorporated, PO Box 626 Launceston 7250.
Radio Tasmania Assocn 185 Derwnet Ave Lindesfarne 7015
REACT Tasmania State Team, RMB 7055, National Park, Tas. 7140.
Sierra Tango Radio Club, PO Box 433, New Norfolk Tas 7140.
Tassie Beavers, 47 Mark St, Hillcrest, Burnie 7320.
Ulverstone Radio Operators Club PO Box 432 Ulverstone Tas 7315.
United Frequency Operators of Tasmania, 7 Jacob Ave, Georgetown Tas 7253.

NORTHERN TERRITORY

Australian Citizen Radio Monitors, NT branch Inc, PO Box 40327, Casuarina NT 5792.
Darwin CB Radio Club, PO Box 40733, Casaurina, NT 5792.

INTERNATIONAL

Alfa Tango Internatinal DX Group, PO Box 140 14100 ASTI, Italy.
Dayglo QSL Club, 13 Synite Place, Rostrevor, BT34-3EP, Co Down, Northern Ireland, UK.
Ethnic Ether (Double EE) Assocn, 31 Bride St Hampton Park Vic 3976
Golf Delta X-Ray (SW UK) PO Box 15 St Austell, PL25-4AA, Cornwall United Kingdom
Gumboot QSL Club, PO Box 4127, New Plymouth 4630 New Zealand.
Lakeside QSL Club of Australia PO Box 593 Palm Beach Qld, Australia 4221.
Lima Delta Association, PO Box 63 Dunstable BEDS LU6 3DR England.
REACT Australia Inc. Headquarters, 1 Flavel Tce, Murray Bridge 5253.
REACT Intrnational Inc., 242 Cleveland, Wichita KS 67214 USA.
REACT NZ CH5000, PO Box 22 — 527 Christchurch, NZ.
Three Vikings QSL Club, PO Box 34, 642 21 Katrineholm Sweden.
Unite Mike Mike International, PO Box 23, B4650, Herve, Belgium.
Wainui Radio Club, PO Box 836, Wellington NZ.

ACT

Pioneer Radio Assocn. ACT Group, PO Box 76, Curtin, Canberra 2605.
Wild Geese International Combat Veterans' Radio Communications Group, PO Box 200, Dickson 2602.

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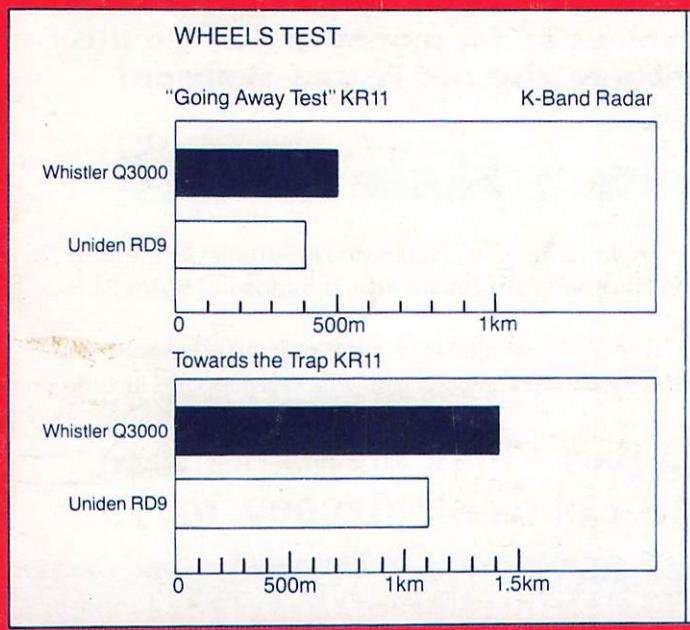

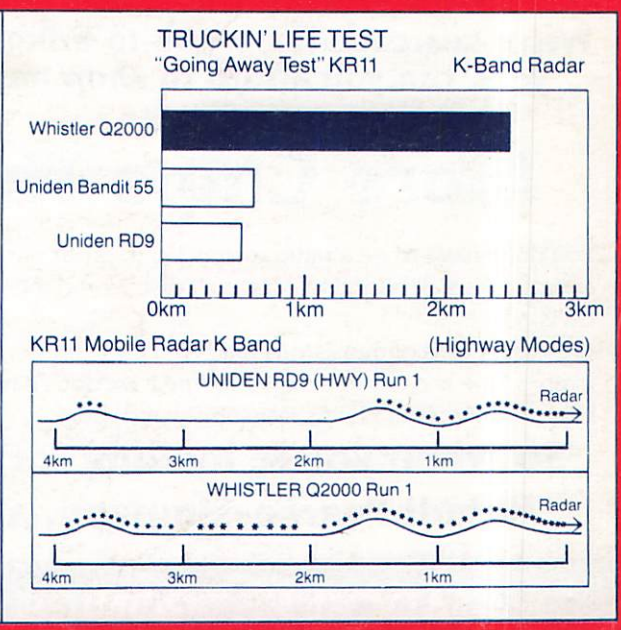

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